

CTO

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SEVEN DOLLARS

SPECIAL ISSUE

*The
Sixth Annual*

CIO 100

**WHO'S TOPS
AT GIVING
CUSTOMERS
GREAT SERVICE?**



**Xerox Corp.'s
Patricia Wallington**

AN INTERNATIONAL DATA GROUP PUBLICATION



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R. Reed Fraley, Executive Director
The Ohio State University Hospitals

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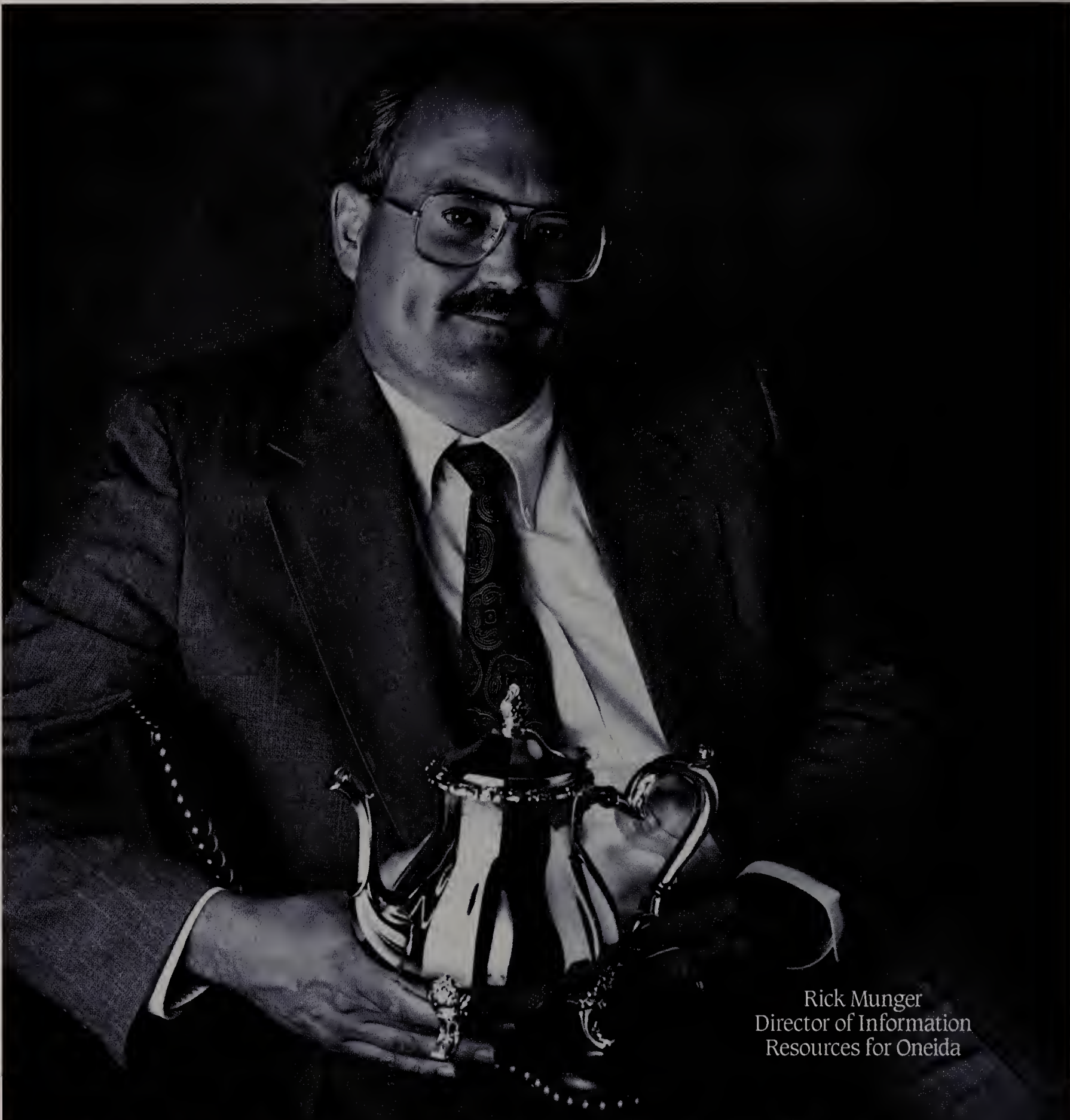
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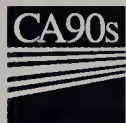
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CIO

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How To Be a Great Client Server

Customers are more diverse, more demanding and have higher expectations than ever before. But if you want to succeed in business, their every wish should be your command.

By Thomas Kiely

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Xerox takes its customers' satisfaction so seriously that it has completely reorganized itself in order to serve them better. *By David H. Freedman*

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Cover photo by
Kent Hanson

CUSTOMER-SERVICE ESSAYS & PROFILES

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The only way for companies to lock out competitors and lock up the customers is to make the conditions of confinement irresistibly advantageous. *By Mickey Williamson*

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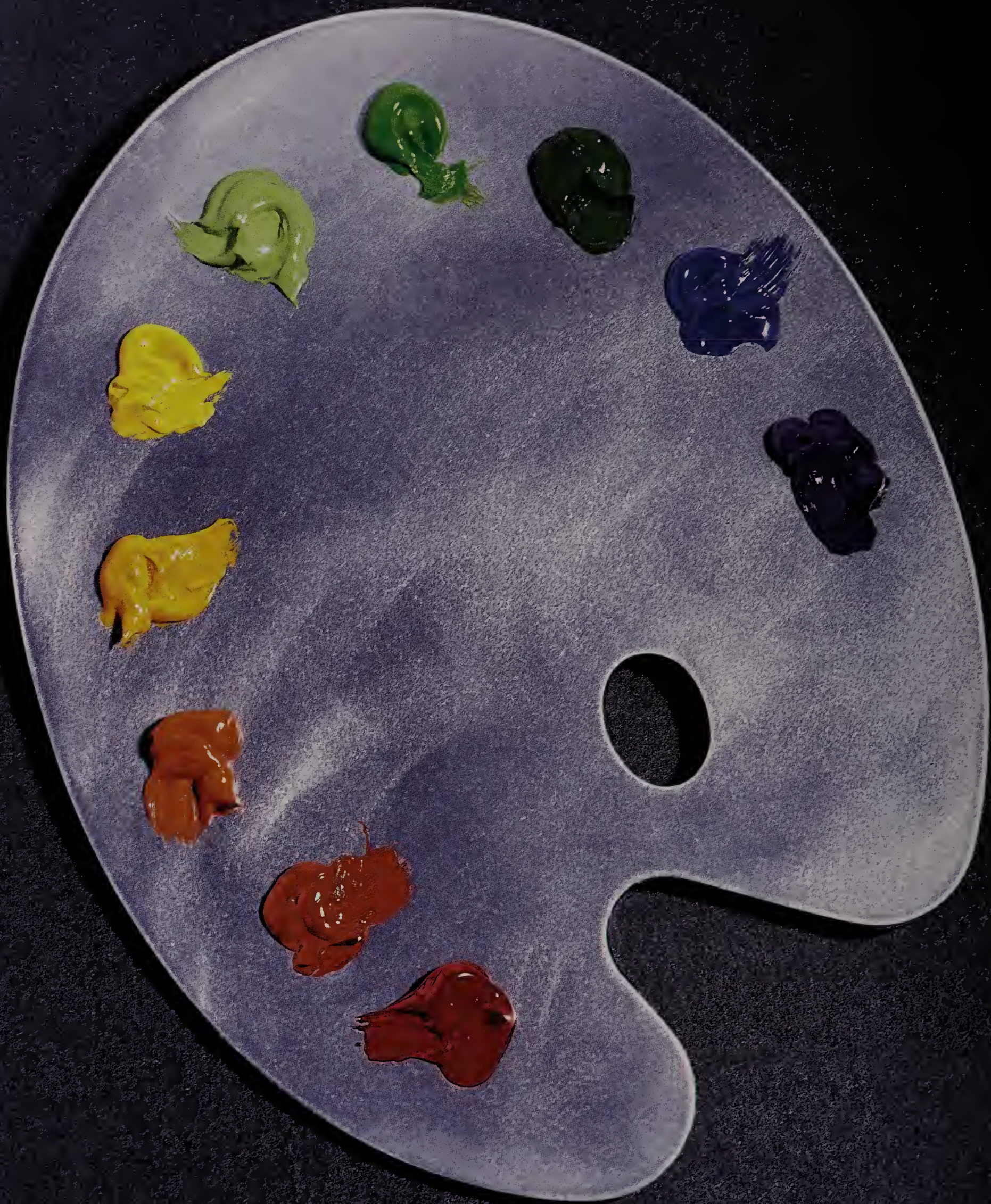
No organization can be all things to all people. Information technology helps companies tailor innovative services to business customers and deliver them without a hitch. *By Allan E. Alter*

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MORE >>>



There's a wide spectrum of UNIX systems.

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A Virtual Shopping Spree

The CIO-100 winners treat customers like kings. Join us as we explore some of the ways consumer-products companies pamper their patrons. *By Richard Pastore*

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They also serve who only stand and wait...after busting their backsides to provide responsive, flexible infrastructures, value-adding applications, easy interfaces and the training and backup to use these systems productively. *By Melanie Menagh*

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INSIGHTS: OBJECT'S BUMPY ROAD

Properly used, object-oriented programming has the potential to increase productivity by 100 percent. But IS executives must resolve a slew of difficult and messy issues before they achieve that grail. *By Jerrold M. Grochow*

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STATE OF THE ART: THE GREAT ENABLER

To provide first-rate customer service, you need the right culture, people and processes. With those in place, technology can make your customer-service dreams come true. *By Glenn Rifkin*

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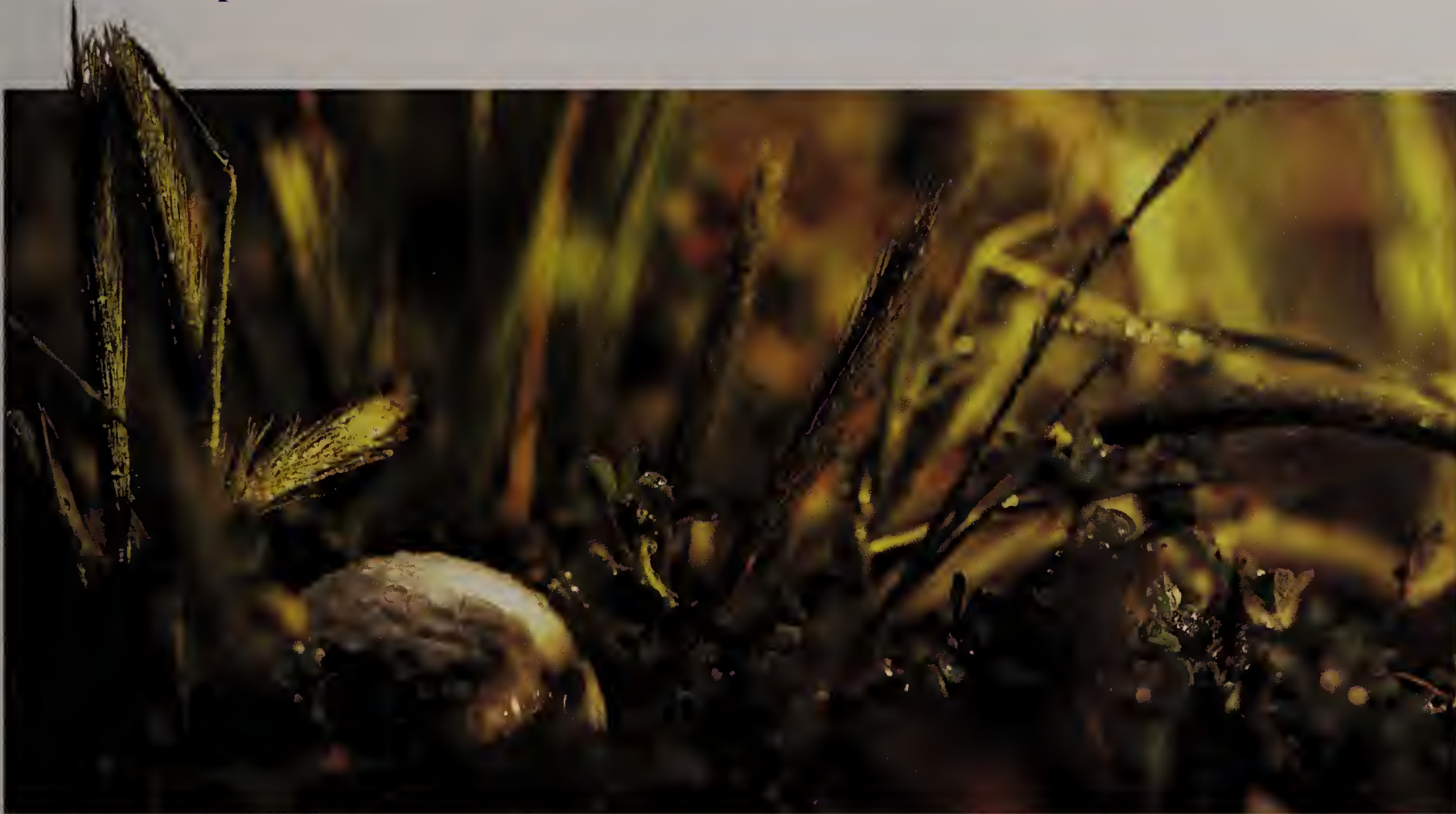
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Today, delivering top-drawer customer service is not just one goal among many—it has become a mission. For this reason, customer service was a natural topic for our sixth annual CIO-100.

Some experts consider service the next competitive edge, yet the markets in which companies compete are becoming more fragmented. Diversity—of age, lifestyle and economic status—will continue to escalate throughout the decade. As the mass market breaks apart, enterprises must carefully define their businesses and identify their customers.

This year we spotlight companies in five categories: Business Products, Business Services, Consumer Products, Consumer Services and Government. In assembling a roster of the top 100 customer-service organizations, Special Projects Editor Allan E. Alter, who led the effort, first sought out judges who were experts in the field. Once the companies were selected, our editorial team explored the tie-in between high-powered service organizations and IT. Not surprisingly, we discovered a clear link between information management and the ability to deliver excellent service.

Information executives at this year's winning companies are playing a vital role in creating the knowledge base that supports outstanding service. Xerox CIO Patricia Wallington says that at her company, nearly every conversation with a customer includes the question, "Are you satisfied?" Xerox makes sure the answer is, "yes," by tracking down and wiping out any causes for dissatisfaction, reports Contributing Writer David Freedman. At Xerox, it is organizationally and functionally unclear where IT leaves off and business processes begin. Isn't that the idea?

This issue would not have been possible without the teamwork and first-rate reporting of editorial staff members Allan Alter, Tom Kiely, Richard Pastore and Megan Santosus, joined by contributors David Freedman, Melanie Menagh, Glenn Rifkin and Mickey Williamson. Managing Editor Lew McCreary oversaw the editorial process, ably assisted by Associate Editors Abbie Lundberg and Leigh Buchanan and Copy Editor Cheryl Davis. Thanks are also due to Editorial Assistants Brooke Burton and Mina Ahn Madore, and to Researchers Sue Sudan and Carol Zarrow, who ensured the issue's thoroughness and accuracy. Under the direction of Art and Design Director Mary Marshall, Assistant Art Director Moira Gillis led the design brigade, assisted by Design Associates Kim Morneau and Kelli Walton.

But the real honors belong to our 1993 CIO-100 winners. The information executives, management and IS teams at these organizations are on the front line of delivering the kind of customer service that makes us say, "Aha!"

Marcia Blumenthal



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Enterprise Networking

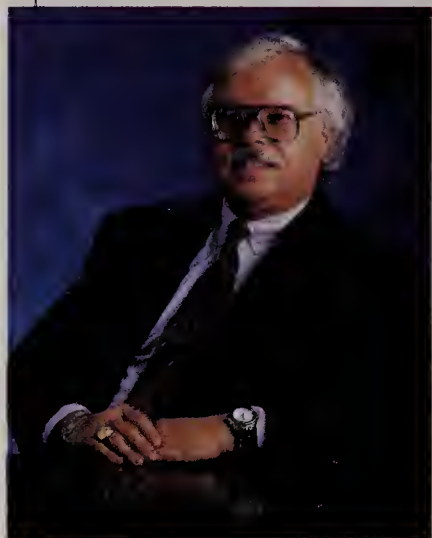
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"Are you satisfied? Almost all of our conversations with customers include that question."

—Patricia Wallington
CIO
Xerox Corp.

Welcome to the sixth annual CIO-100. Every August, *CIO* focuses on a significant business trend and explores the role technology plays in the success of 100 companies, government agencies and nonprofit organizations. This year, we take a look

at IT's contribution to customer service.

Wooing customers and holding their loyalty is serious business. Xerox Corp., our featured CIO-100 winner, has developed an elaborate communications system that keeps engineers practically one step ahead of their customers. Customers' questions are dealt with swiftly and effectively: In some instances, engineers actually foresaw potential equipment snafus and squelched them before they surfaced. It's this proactive stance that has propelled Xerox into the forefront of the copier market.

Xerox offers just one example of superior customer service. This issue is full of tales about companies that go above and beyond the call of duty to deliver the goods or pacify an irate customer. As customer groups have grown more fragmented in their makeup and more assertive in their demands, this level of satisfaction has become increasingly difficult to achieve. The executives who manage these winning organizations and the visionary CIOs who have deployed IT to achieve or exceed customer-service goals have reason to be proud of their achievements.

I would like to take this opportunity to congratulate each of the organizations that withstood the rigorous scrutiny of our judges and editorial staff to earn a place in the Customer-Service CIO-100. I hope our readers will find, as I did, that we can learn from the examples of such customer-service exemplars as Lands' End, AT&T and Dell Computer.

Wynne L. Lutz

P.S. Registration is well underway for the next CIO Perspectives Conference, "The Politics of IT: Reordering The Enterprise," to be held Oct. 17-20 at the Westin Mission Hills in Rancho Mirage, Calif. Please call our toll-free registration hot line at 800 366-0246.

Coming In CIO

Tool, Magic Tool

Associated Grocers Inc. is on a mission. The wholesale grocery cooperative, driven by client/server's promise to deliver rapid response and eventual economies, is seeking the single magic management tool that will ease the nightmarish management and administrative hassles that go along with the technology. A panel of experts offers advice to the Seattle-based organization.

The Virtual Buzz

No buzzword buzzes louder than "virtual." Besides describing an artificial but vivid computer-generated experience, it connotes an organizational style of competing by mutating quickly and flexibly to meet changing customer needs. Whichever definition you go by, technology is at the heart of achieving it. *CIO* profiles several companies trying to reap the benefits of virtuality.

Meeting of the (Remote) Minds

Business meetings are gaining in usefulness by leveraging developing technologies to help remote participants interact productively. From video- and audioconferencing to graphics-supported whiteboard systems, work teams are collaborating in new ways. Smart CIOs will see these as related technologies to be mixed and matched appropriately and with an organization-wide strategy.

LAN INTERNETWORKING



Driving to the Forefront of Technology. Advantage: Chrysler.

Challenge

To design and build an enterprise network which supports interoperability between legacy systems and applications, as well as new and future applications. The network must integrate the diverse departments involved in the development of new vehicles, including Product Design, Engineering, Manufacturing, Procurement and Supply, Finance, Sales and Marketing.

Solution

Ascom Timeplex designed an integrated standards-based router network using Ascom Timeplex TIME/LAN FDDI Backbone Routers to form the core of the network at Chrysler's new Technology Center (CTC). This network allows the CTC to implement network changes faster and at lower cost. **Most important, the Ascom Timeplex network helped Chrysler reduce the time it takes to bring a car to market.**

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TRENDLINES

COMBATING HOMELESSNESS

OFF THE STREETS AND ONLINE

Information management is key to fighting homelessness," said Ken Smith, president of the Vietnam Veterans Workshop, a non-profit veteran's support and advocacy group in Boston. "With information management, we are able to give people back their identities, to reinstall some order in their lives."

The Workshop has turned to LAN connectivity providers Racal-Datcom Inc. and Racal InterLan for an inter-networking solution that

may eventually lead to the establishment of a nationwide data-communications network for homeless-veterans shelters. The vendor is donating an information infrastructure that will allow the New England Shelter for Homeless Veterans, which is run by the Workshop, to link departmental LANs in support of administration and job-training programs. Eventually the network will be tied into a cross-country information system to meet the needs of homeless vets.



KEN SMITH, COLIN POWELL and Massachusetts Gov. WILLIAM WELD (l.-r.) discuss the automated accounting job training program with the shelter's training coordinator, KATHLEEN FLYNN, and MIS director, FRANK KILROY.

"Homelessness is migratory, and some of these veterans have been on the street for 10 or 15 years," explained Smith. "They survive by going from shelter to shelter. If we can track [a veteran] from Fort Lauderdale to Buffalo, and we know that he might need some intensive psychiatric treatment or long-term drug-abuse help—that infor-

mation is vital. If you'd been in a veteran's shelter in

Chicago and you walked away from that program—and I know that—I can provide to you a separate, specialized type of counseling."

The technology will also enable increased security through electronic IDs. Each homeless veteran arriving at a shelter will receive a bar-coded card, which will grant him access to that shelter and its services and to any other shelter in the program, according to Bob Herlihy, business manager for the Workshop.

At the Boston shelter, the network will initially connect administrative, training and other support services that currently run on standalone computers scattered throughout the 10-story building. Herlihy hopes eventually to see immediate online access to the central discharge-record repository in St. Louis and to veteran's hospitals throughout the nation.

One function supported by the network is the shelter's Automated Accounting Job-Training Program, a first-of-its-kind, four-month course in accounting, business mathematics, computer skills and resume development. The program, funded by the Department of Labor, recently graduated its first 15 students. Gen. Colin Powell, chairman of the joint chiefs of staff, appeared as keynote speaker at the commencement.

NEWS YOU (BUT NOT YOU) Can Use

Unless you're Bill Clinton or Isaac Asimov, chances are you're not interested in everything. Unfortunately, most news sources have to be, since they

serve a diverse audience whose concerns range from AIDS research to zinc prices. For those staggering beneath the weight of information overload, Individual Inc. offers a way out.

The Cambridge, Mass., company provides individualized news products based on customers' interests. Individual uses an expert system to sift through more than 10,000 articles each day, filtering, retrieving and then ranking articles of interest to each subscriber. This information is then

incorporated into one of the company's customized news products.

First!, which serves corporate-level management teams and departmental workgroups, delivers stories daily in full text via fax, E-mail or as a database into Lotus Notes. Even more concise is HeadsUp. Sub-

scribers select from more than 700 topics under the general categories of information technology, telecommunications, health care, energy, automotive

and defense (for example, topics in the IT category might include operating environments, desktop publishing or multimedia). A page of one- or two-sentence story capsules extracted from more than 200 worldwide information sources is delivered via fax or wirelessly to mobile devices such as handheld computers and personal communicators. Readers who want to know more about any story can order the full text using a touch-tone phone.

HeadsUp news sources include

general business feeds, such as Reuters and Knight-Ridder, and industry-specific publications, such as *Computerworld* and *PC Week*. A subscription is \$49.95 per month for the daily report, including one full-text retrieval. Additional retrievals are \$4.95 each. For information, call 617 354-2230.



LAN INTERNETWORKING



Worldwide Lotteries & Scientific Games: A Winning Combination.

Challenge

To design and build a network for Scientific Games Inc. (SGI), a leading supplier of instant lottery tickets and lottery data processing systems and services to 60 lotteries around the world. The network must support SGI's worldwide customer base, yet be flexible enough to be sold as part of a stand-alone system. In addition, it must provide constant support for a mixture of real-time lottery transactions, local area network traffic and terminal data entry.



Solution

Ascom Timeplex designed and installed a network comprised of TIME/LAN Routers, to provide a new flexible network architecture for Scientific Games. Originally designed to support only TCP/IP, the network has become the backbone for communications at SGI by providing support for existing X.25 networks and new frame relay-based services. An innovative service agreement covers not only the routers, but also includes other equipment at customer sites, providing Scientific Games with the comfort of knowing their network is supported by a qualified service team 24 hours-a-day, 7 days-a-week.

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TRENDLINES

PEN COMPUTING

No TECHNICAL FOULS

Elaborately engineered sneakers aren't the only kind of mobile technology in the NBA these days. With the help of IBM

and some specialized software, coaches are using pen-based notebook computers to access information that can help them plot their strategies during games.

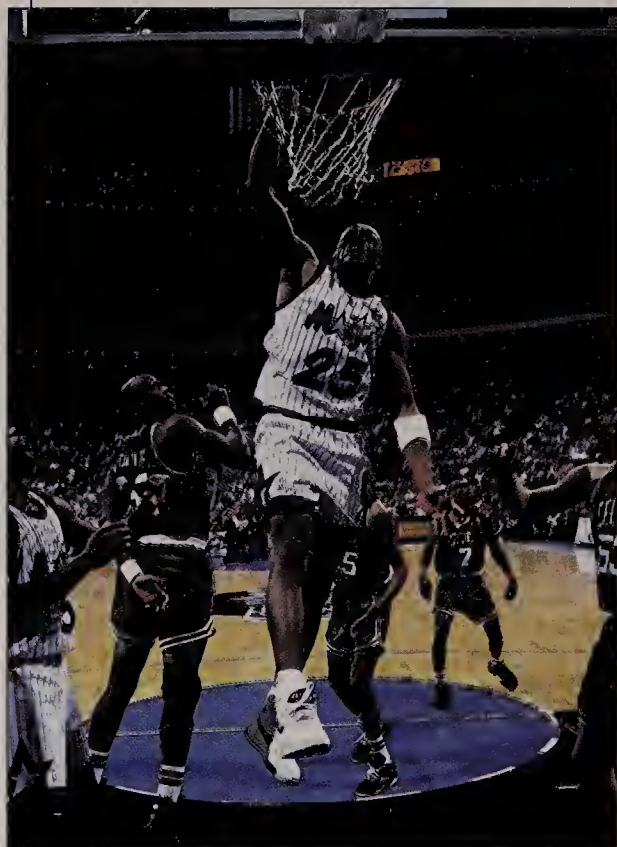
Although all 27 NBA teams have been equipped with conventional IBM notebooks for several seasons, the machines have seen limited computing time. During this past season, however, a few teams gave IBM's ThinkPad 710T pen-based notebook a formal tryout. Loaded with basketball-specific software developed by Information and Display Systems Inc., of Jacksonville, Fla., the notebooks quickly became

first-string decision-support technology.

The notebooks function as electronic playbooks and clipboards that coaches can use to diagram and store plays during a game. The software contains modules for statistics, scouting and plays, enabling coaches to easily access and manipulate data that previously was recorded on paper. Statistics on everything from shooting percentages and rebounds to how many times a player dives into the crowd for a loose ball can be stored in a database. "Essentially, it's a coaching tool that shows us how many times we run certain plays and how well they are working for us," said Tom Sterner, an assistant coach for the Orlando Magic. If a particular play isn't working, Sterner can tap into his database and be presented

with a number of alternatives. Without the ThinkPad, collecting and analyzing the same kind of data would involve several hours of sifting through paper-based stat sheets. "It's a lot quicker and a lot neater," Sterner said. "The reports generated contain information we can use during timeouts or halftime."

The notebooks have another advantage over regular playbooks: They're password-protected. That feature would have been welcomed by Indiana Pacers player Malik Sealy, who lost his playbook at the airport during playoffs against the New York Knicks. Two caring New Yorkers found the book and promptly handed it over to radio host Don Imus, who read an embellished version over the air. Even in the world of professional basketball, it was a cheap shot. ■



NOTEBOOK MAGIC: NBA teams like the Orlando Magic are using pen-based computers as electronic coaching tools.

A FOUL-WEATHER FRIEND

Claudia King knows bankruptcy, Chapter 11 and verse. For more than 10 years, eight of them at her own firm, she has helped companies cope with the paper quagmire of rules and regulations that accompany this increasingly common trauma.

Claudia King & Associates Inc., located in Jersey City, N.J., uses proprietary software to automate the administrative requirements of the bankruptcy process. "Most people think about bankruptcy as a fix-up process, but it's really about the flow of information," explained King. "How well and how quickly a company meets its deadlines, compiles a complete creditor list and provides the appropriate experts with the right information is crucial to whether the company will emerge from Chapter 11."

King & Associates, whose clients include Continental Airlines, Ames Department Stores and Trump Taj Mahal, provides information required by accountants, bankruptcy counsel, courts and others. It also establishes a complete database of possible creditors. According to King, most firms underestimate their creditors by 80 percent—a dangerous oversight because anyone not notified of the bankruptcy proceedings can claim the full amount owed rather than the percentage allotted under Chapter 11.

The service leaves management free to concentrate on the bankrupt business rather than on the business of bankruptcy, according to King. "Trying to do it on your own can be a nightmare that actually adds years to the process." ■

SIM ELECTS 1993-94 BOARD

The Society for Information Management (SIM) has announced its board of directors for 1993-94.

Robert M. Rubin, vice president of information services at Elf Atochem North America in Philadelphia, was elected president. He has served as a member of SIM's executive, finance and planning committees, and as chairman of its Philadelphia chapter. He is also the founding editor

of *Network and Executive Brief*, SIM's industry publications.

Other elected officers include President-Elect Warren L. Harkness, director of information systems at Bose Corp.; Vice President of Finance James R. Kinney, vice president of customer-service systems for Kraft General Foods; and Vice President of Communications Harvey Shrednick, senior vice president of information services at Corning Inc. ■

LAN INTERNETWORKING



Ferris State University: Teaching & Technology for the Future.

Challenge

To design a network that provides high-speed connectivity for Ferris State University's 12,000 students and over 2,000 workstations. The network must support many protocols, including IPX/SPX, TCP/IP, SNA and AppleTalk to connect 23 academic and administrative buildings on the University's main campus, as well as to provide wide area connectivity to other institutions. In addition, the network must allow staff and students to access all data facilities including mainframes, library, Novell, Internet and Client/Server based services from any workstation at any time.

Solution

Ascom Timeplex developed a strategic network plan, which included TIME/LAN multiprotocol routers utilizing an FDDI backbone with Token Ring, Ethernet and wide area networking connectivity to neighboring networks. This solution provided a solid foundation for the future of the campus network, with an unlimited amount of growth capability. Most important, the network helped improve the quality of student life including the ability for students to go to any computing laboratory, and obtain the proper information for their field of study.

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TRENDLINES

LIBBEY LAWSUIT

AN OUTSOURCING OUTRAGE?

Talk about outsourcing deals blowing up in your face. Glassmaker Libbey-Owens-Ford Co.'s (LOF) pact with Computer Technology Management Inc. (CTM), an LOF spin-off headed by its former IS chief, John Purser, has degenerated into a multimillion-dollar lawsuit alleging a kickback conspiracy between Purser and three recently fired LOF executives. LOF also had raised an alarm in an Ohio court that its vital data was imperiled by remaining in the hands of a firm it charged was out to defraud it, although that concern has since been resolved to LOF's satisfaction.

The outsourcing contract, worth \$20 million to CTM over the last two years, began in 1990 when then-IS Director Purser proposed a buyout of the in-house IS department and its computer resources, which he would reorganize as his own outsourcing company with LOF as his first client (see "For Sale: One Cost Center, Slightly Used," *CIO*, July 1992). The deal has since saved LOF, which is based in Toledo, Ohio, an estimated \$11 million in IS costs.

But in May, according to

reports published in *The Wall Street Journal* and *The Blade* of Toledo, LOF fired three top executives. The trio, whose contracts prevent them from being sued, were accused of accepting a total of \$6 million in kickbacks from Purser and CTM, as well as other third-party businesses involving gas-well sales and industrial-robot leases. Subsequently, the *Journal* reported that LOF claimed CTM was spun off with the sole intent of defrauding its former parent.

CTM spokesmen asserted that "the accusations that are made in the lawsuit are false. There has been no conspiracy, no fraud, no kickbacks." In reference to other CTM outsourcing clients, they stated, "CTM's customers understand that the legal system is designed to resolve disputes such as this. They are standing by CTM until this matter is resolved." All parties have agreed that LOF will continue to have access to its computer data and systems, and CTM continues to provide LOF data-processing services without interruption.

According to the *Journal*, LOF raised the specter of data vulnerability in court

WHEN DINOSAURS RULED THE DATA CENTER

By this time, everyone in the civilized world has heard about "Jurassic Park" 's roller-coaster thrills and brachiosaurus-size price tag. But if you have not yet seen this summer's blockbuster, you may not know that



this is also the first movie in which a CIO is eaten by a velociraptor. In fact, considering that biotechnology is supposed to be the villain here, it is the practitioners of information technology who fare the worst. In addition to the CIO, who is at least portrayed sympathetically, a scheming computer

jockey ends up as lizard bait. But take heart: Our heroes are saved, temporarily anyway, because a little girl knows Unix.

It is also interesting to note that the whole fiasco was triggered by a programmer who felt he was underpaid and underappreciated. Who says you can't learn something at the movies? ■

statements: "This information is proprietary, and its destruction or any tampering with it could irreparably destroy [our] accounting system and business." The companies have since

reached an accord, satisfying LOF that its business and data are safe, said LOF spokesman Byron Quandt, who declined to comment on the other charges while the suit is pending. ■

SCHOOL CHOICE

Relocating for a new job is never easy; when there are kids involved, it can be traumatic. Families moving to a new community sight unseen may not even know where they're going to live, let alone where to send the children to school. So Westerville, Ohio-based Public Priority Sys-

tems Inc. has developed School Match, a database that contains information on all U.S. public schools and on 8,000 private schools worldwide.

Parents define their requirements by completing a questionnaire. Those searching for a public school answer questions about

class size, student/teacher ratios and accreditation. Those interested in private schools are asked to consider tuition, availability of financial aid and course offerings. Within 24 hours of receiving the answers, School Match informs parents of the 15 most compatible schools in the area specified.

A nationwide network of consultants gathers the information from hard-data sources that can be audited—for example, information that a school treasurer may submit to a town auditor.

A full search costs less than \$100; the cost is \$500 for special-needs children. ■

LAN INTERNETWORKING



D'Arcy Masius Benton & Bowles: Networking Around the World.

Challenge

To design and build an integrated network for D'Arcy Masius Benton & Bowles (DMB&B), a leading worldwide advertising and marketing company, that combines IPX, IP and SNA traffic. The network also must support traffic from eight remote sites across the United States, allowing DMB&B to track customer and market trends.

Solution

Ascom Timeplex designed, built and installed a network using TIME/LAN Routers located in New York, Connecticut, Illinois and Michigan. The network carries client information, as well as SNA traffic from IBM AS/400 midrange computers to file servers via Ethernet and Token Ring networks. The network allows DMB&B to connect work groups across the United States, improving information processing so that DMB&B can better focus ads at target markets in the print, radio and television media.

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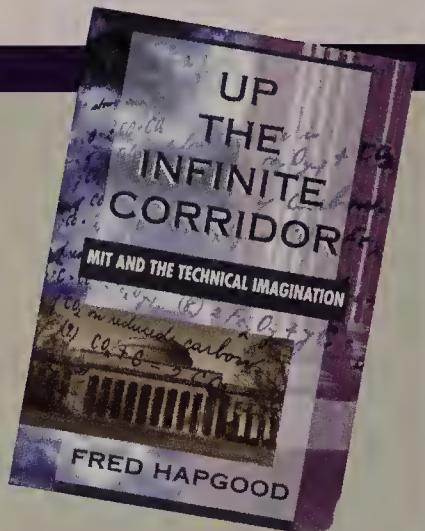
TRENDLINES

OFF THE SHELF

UP THE INFINITE CORRIDOR

MIT and the Technical Imagination

By Fred Hapgood
Addison-Wesley (Reading, Mass.), 1993
203 pages, \$22.95 (hardcover)



In the epic culture of engineering depicted in Fred Hapgood's *Up the Infinite Corridor* (a reference to the central architectural axis of the MIT campus, a long corridor, transecting several buildings, off of which universes of creative inquiry open up behind nondescript doors), the ultimate ambition is to "stun the aliens"—to build something so dazzling, impressive and elegant in its simplicity that when flying saucers arrive to scope out the planet, the visitors will be flat-out amazed.

Corridor examines the metaphysics and gestalt of the engineering process as embodied at MIT, the temple of its modern practice. In language imbued with an enthusiast's wonderment, Hapgood makes MIT stand for the virtues of dogged curiosity, resilient energy and helpless ingenuity that make engineers the butt of half-envious ridicule.

To Hapgood, the engineering tradition largely amounts to synthesizing new knowledge out of instructive failures. The route to achieving a design with the power to stun the aliens is littered with space debris. The engineer's challenge is to fail repeatedly and quickly recover, profiting from each succeeding obstacle while navigating through what Hapgood calls "solution space." Eventually, an answer is reached.

"Good engineering is not a matter of creativity or centering or grounding or inspiration or lateral thinking, as useful as those might be, but of decoding the clever, even witty, messages solution space carves on the corpses of the ideas in which you believed with all your heart, and then building the road to the next message."

But a culture in which tireless invention, inquiry, ingenuity and eventual crowning success are the benchmarks of status inevitably produces casualties. The MIT experience is a well-known pressure cooker. So, besides engineering's Holy Grails, Hapgood also honors its odd forms of escapism and recreation. There's a chapter on the Tech Model Railroad Club ("a combination fraternal organization, neighborhood bar, wilderness hut, and safe house, an oasis of *comunitas* in a culture that otherwise held its members up to the most scary sort of individual inspection"). And there's also a chapter on the famous "micromouse" races, in which mechanical mice are timed through intricate mazes to show off their adeptness at "learning."

The beauty of *Up the Infinite Corridor* is how decisively it obliterates wonk/nerd stereotypes by showing the passion, wit, creativity and swashbuckling riskiness that define the engineering pursuit. ■

WINNER AND STILL CHAMPION

East is East but West, apparently, is best. For the second time in a row, a team of high-tech leaders from the West Coast beat out its East Coast industry rivals in The Fifth Annual Computer Bowl, produced by The Computer Museum in Boston and presented by the Association for Computing Machinery.

The West Coast team was captained by Harry J. Saal, head of Network General Corp., and included executives of Be Corp., GO Corp., SuperMac Inc. and Dataquest Inc. Mitchell E. Kertzman, chairman and CEO of Powersoft Corp., was captain of the East Coast team, and representatives of Legent Corp., Phoenix Technologies Ltd., Viewlogic Systems Inc. and the Patricia Seybold Group made up the team.

The final score was 25 to 14. The following are a few of this year's posers:

1. Which software product was on the Official PC Letter Vaporlist longest? a.) Lotus 1-2-3 for the Macintosh b.) Microsoft Windows c.) Ashton-Tate's dBase IV
2. Scott Adams sometimes puts his Internet E-mail address between his syndicated comic strip's panels. What comic strip does he draw?
3. Since 1984, a contest has been held on Usenet for the most unreadable, creative, bizarre but working C program. What is the contest's name?
4. What is the name of the legendary creature lurking in the depths of the Macintosh technical Notes HyperCard Stack?
5. For what product was Amiga known before developing its PC?

1. Lotus 1-2-3 (50 months, from October 1987 to December 1991)
2. Dilbert
3. The Obfuscated C contest
4. Clank, the dog-cow
5. A foot-operated joystick

Answers

CAREER MOVES

AT&T recently announced that ARON J. PONDER was appointed to the new position of senior vice president and chief information officer. Ponder will work with the Basking Ridge, N.J., company's business units and corporate planners, overseeing the activities of its information management operations. Most recently employed at Sprint Corp. as vice

president and CIO, Ponder has also served as CIO at Federal Express in Memphis, Tenn.

FRANK C. CLARK was appointed vice president and CIO at Baptist Healthcare Systems in Louisville, Ky. Clark is responsible for developing, managing and updating tactical and strategic information systems for the organization, which owns and operates five Baptist hospitals in the state of Kentucky. ■

LAN INTERNETWORKING



U.S. Military Academy: Helping cadets be all that they can be.

Challenge

To provide a high performance backbone network for the United States Military Academy to expand capacity for over 6,000 personal computers and workstations which are used daily by cadets, professors, and administrative personnel and allow the migration to new high-bandwidth scientific applications. Network security and reliable traffic performance were critical requirements driving the migration from Ethernet to FDDI.

Solution

Timeplex Federal Systems customized and installed an FDDI backbone network consisting of TIME/LAN FDDI Routers. The TIME/LAN network improved throughput performance by a factor of 20 and greatly enhanced security. The network has the capability to migrate new applications as they are implemented and provides the 4,000 cadets at the United States Military Academy the network power to work effectively with their professors, cadets, and other school services, including the library.

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TIMEPLEX FEDERAL SYSTEMS, INC.

Object's Bumpy Road

Properly used, object-oriented programming has the potential to increase productivity by 100 percent. But IS executives must resolve a slew of difficult and messy issues before they achieve that grail.

BY JERROLD M. GROCHOW



Object technology is often presented as the answer to an information executive's systems-development prayers. Boosters claim it will be embraced universally, improving programmers' productivity by an order of magnitude, providing never-before-achieved levels of application flexibility and allowing IS organizations to finally move beyond the maintenance morass created by less-flexible development methodologies.

Unfortunately, we won't know for several years if these claims are true. We can, however, make some reasonable guesses as to where the shining path of object technology will lead us, and whether we will like where we end up.

From the programmer's point of view, objects combine program code and "working storage" data into an encapsulated unit (the object). By hiding the internal structure of the data and requiring all access via public "methods," programming with objects forces a much higher degree of modularity than any other programming style.

Objects are generally designed in such a way that they relate to other objects in a hierarchical manner. Object programming languages provide the programmer with the capability of "inheriting" all of the functions and data of the other objects in a hierarchy. Creating a new object becomes a simple matter of programming the needed

additions or changes—everything else is inherited.

Object technology, properly used, yields a highly modular, highly reusable set of programs, and it really does make it possible to increase productivity by 100 percent. The ability to reuse modules based on concepts of hierarchical inheritance and component-construction techniques is key to realizing this productivity gain.

These and other characteristics of object-based systems development should make everyone in the IS industry sit up and take notice:

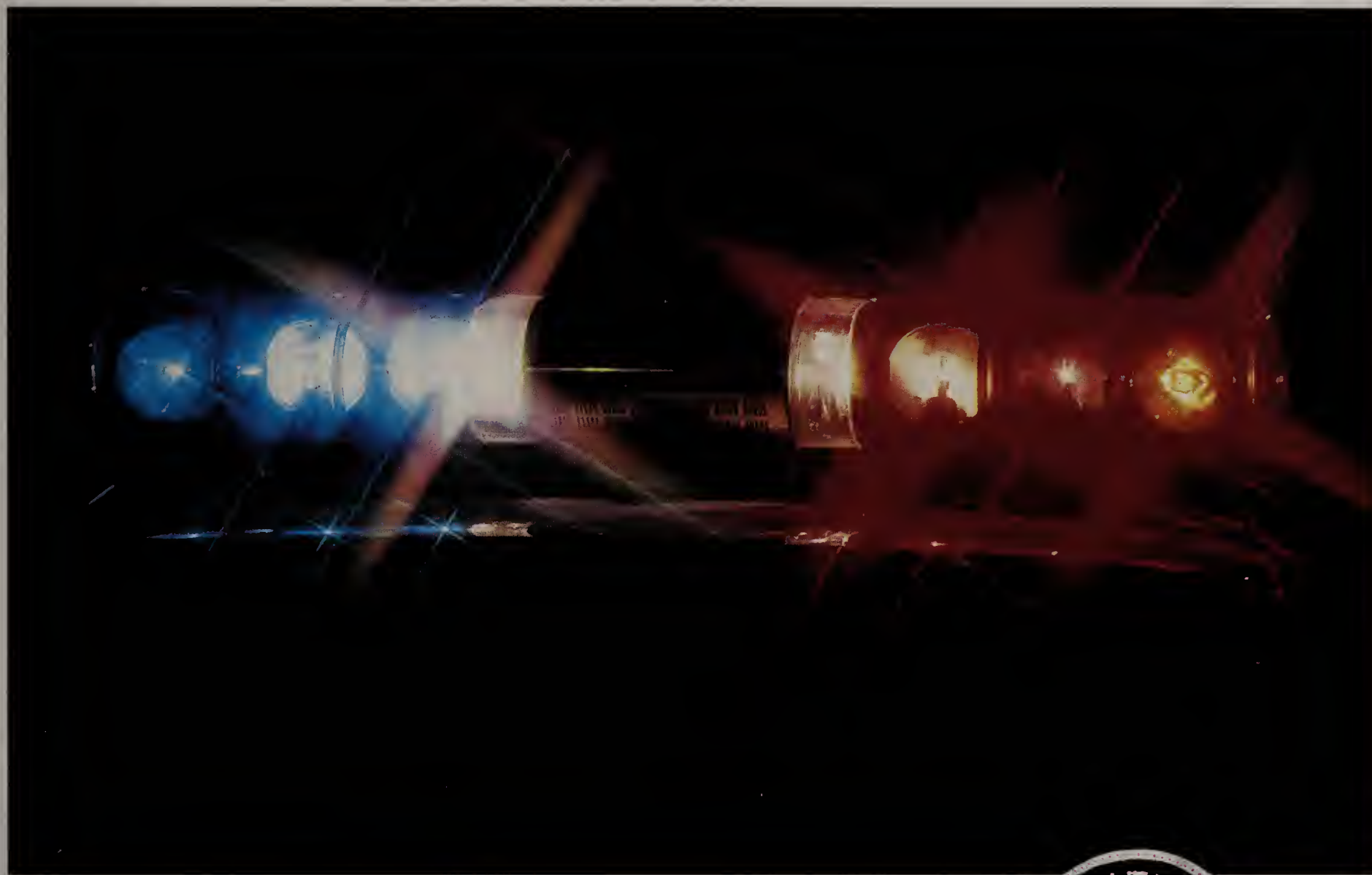
- Objects provide a natural mechanism for breaking apart systems to study their components and interactions—a key factor in an effective analytical process.

- Object modeling forces users and developers to employ a common language. Business problems are analyzed in terms familiar to the end user (purchase order, journal voucher, customer, vendor), and these terms are employed consistently throughout the system's life cycle, eliminating a major source of errors. No longer does "purchase order" become "PURCH4" when the programmer gets involved.

- Iterative prototyping and incremental analysis go hand in hand with object development, making it possible to meet users' changing requirements. End users' understanding of which features are effective and useful will grow as they work with a system (or at least a prototype). That means we must be prepared to deal with almost constantly changing requirements as we work with the accountants, customer-service representatives, managers and executives who will be the end users of our systems.

All the factors needed to significantly improve development and

LAN INTERNETWORKING



Metro Toronto Police: Speeds Up Law & Order.



Challenge

To design and build a network that connects the divisions of the Metropolitan Toronto Police. The interconnection of the divisions will facilitate information sharing, thereby improving communications among all divisions. Due to the changing demands of law enforcement and emergency services, and the critical nature of police work, the network must move information between divisions quickly, accurately and reliably.

Solution

Ascom Timeplex developed and installed a network composed of TIME/LAN routers and LINK multiplexer systems. The network consists of an FDDI backbone at headquarters which connects all divisions, allowing the sharing of files to help in police investigations, auto fleet management and information maintenance. This reliable and scalable Ascom Timeplex network ensures that Metropolitan Toronto Police can readily adapt to the changing needs of law enforcement.

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Innovate with Architectures...Implement with Standards.

maintenance productivity, as well as systems quality, exist in object technology. They are woven into the very fabric of this development strategy, into the definition of object languages and into the tools that are used to implement applications using objects.

But is it sufficient that all the raw materials of productivity and quality improvement be available? Clearly not. Whether object technology can fulfill its promise will still depend on whether it can flourish in the IS environment. To determine this, we must answer a number of questions. Can object technology be used to develop systems of the size that IS departments typically implement (more than one million lines of code)? Can IS analysts and developers be taught to effectively use object technology? Can the use of object technology on projects involving up to 50 people be managed effectively? And finally, will systems developed with object technology perform efficiently under the stringent demands of the IS environment?

Many major organizations are already investigating or using object technology. But astute information executives may have noticed certain inconsistencies in the promises of object proponents, who sometimes gloss over difficult issues and address legitimate concerns with glib answers. In some cases, further study and analysis will resolve these issues. In others, inconsistency and glib responses may be all there is—at least for now.

Consider the following: Most gurus agree that implementing object technology will require wholesale change in development strategies—something at which our industry has never excelled (just look at our adoption of computer-aided software engineering). The key concept of reuse, for example, may find difficulty taking hold in a culturally entrenched IS organization. Programmers working with object create “inheritance hierarchies” within an application and “class libraries” that

are shared across applications. While neither of these ideas is new (subroutines and subroutine libraries have been around for a long time), both are difficult to implement in organizations where “not invented here” remains the byword. For object technology to succeed, we must

Is it sufficient that all the raw materials of productivity and quality improvement be available? Clearly not. Whether object technology can fulfill its promise will still depend on whether it can flourish in the IS environment.

win the same management battles we have been fighting for years.

Very few large-scale strategic business systems have been implemented using object technology, and almost none using any repeatable strategy. Essentially, all of the current large-scale object systems are either real-time embedded systems (for example, software that runs an oscilloscope or a stamp dispenser), CASE tools or systems software. Business systems are still in the prototyping or development stage. CIOs who adopt object technology to develop strategic business systems in their organizations will therefore be breaking new ground.

As they venture into these unfamiliar waters, IS executives will find little in the way of industrywide agreement to make the going easier. Many fundamental issues—including life-cycle length, design methods, languages and approaches to estimating system size—are still being debated. Disagreement on these subjects demonstrates both the immature state of the technology and the obstacles projects will face until

industrywide (or at least de facto) standards exist. Tools and languages are also immature, incompatible and subject to significant change.

The need for system integration is perhaps an even greater challenge to object development than the lack of standards. Before considering functionality, IS managers must make sure all the system's software, languages and tool components work together. Do the class libraries the company has purchased work with each other and with the language compiler it is using? Can the database server, network and workstations communicate through those class libraries?

Integration with legacy systems and databases is difficult and messy. Because their heritage is in embedded and operating systems, early object technologists didn't focus on how to integrate workstation software with mainframe databases and systems: It just wasn't their problem. It is a problem for the IS manager, however, and many object vendors now recognize this and are trying to develop viable solutions.

Although object technology has tremendous potential, realizing this potential will require significant resources and commitment. The obstacles to moving object technology from the prototyping lab into the real world of systems production are not trivial. Development and design strategies remain unclear, there are no de facto standards for design methods and tools, and—perhaps most importantly—achieving effective integration with existing systems remains a daunting task. Despite the obstacles, the level of interest and investment in object technology is stronger than ever. The payoff will belong to those organizations that are willing to go the distance. ☐

Jerrold M. Grochow is vice president and chief technology officer at American Management Systems Inc. (AMS), an international systems-development and consulting firm in Arlington, Va. He is also director of AMS's Center for Advanced Technology.

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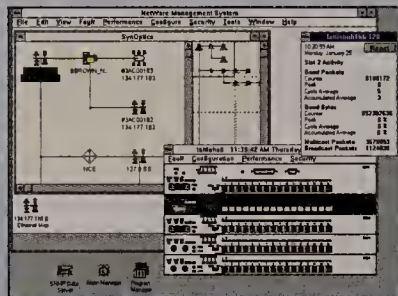
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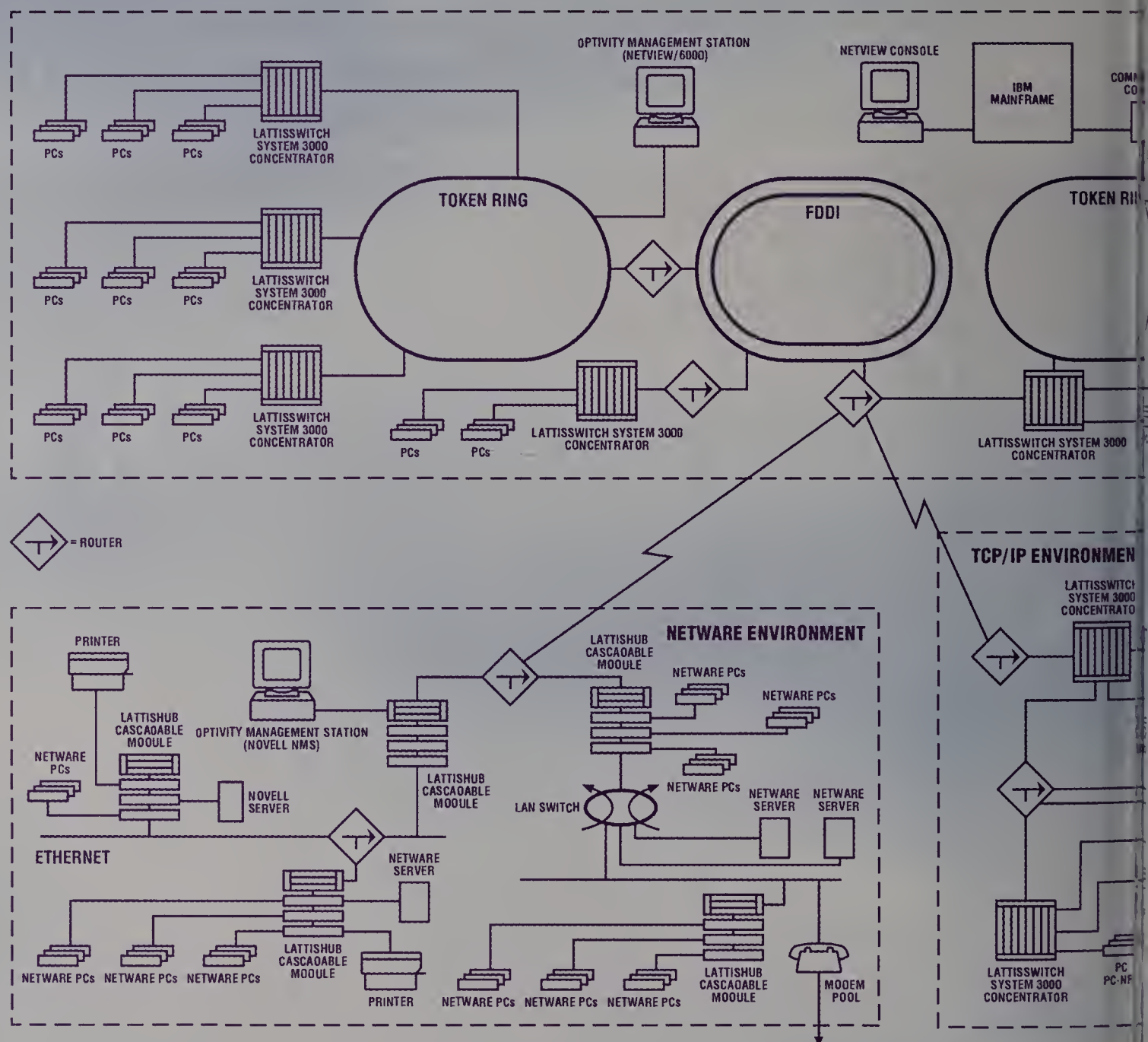
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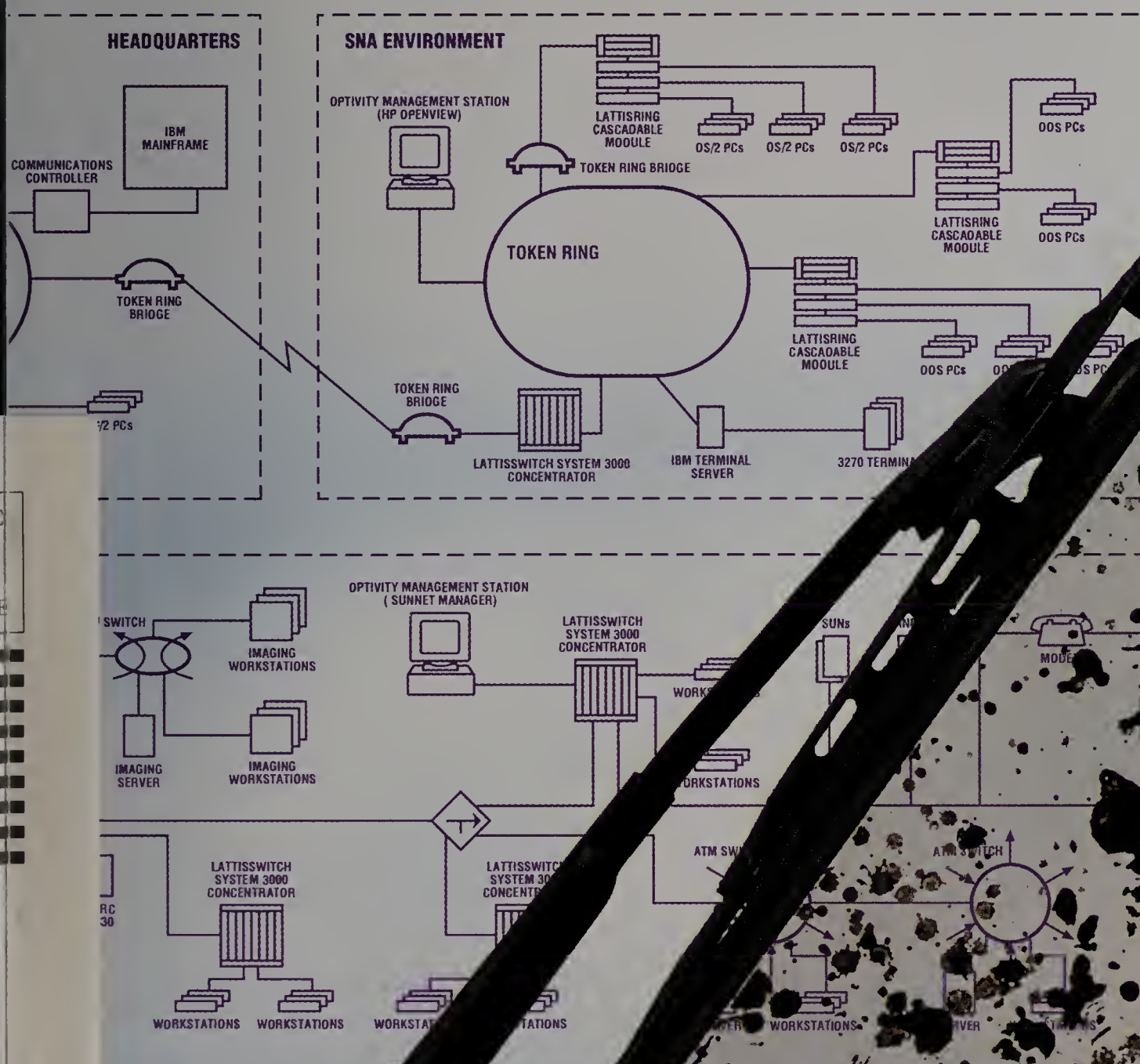
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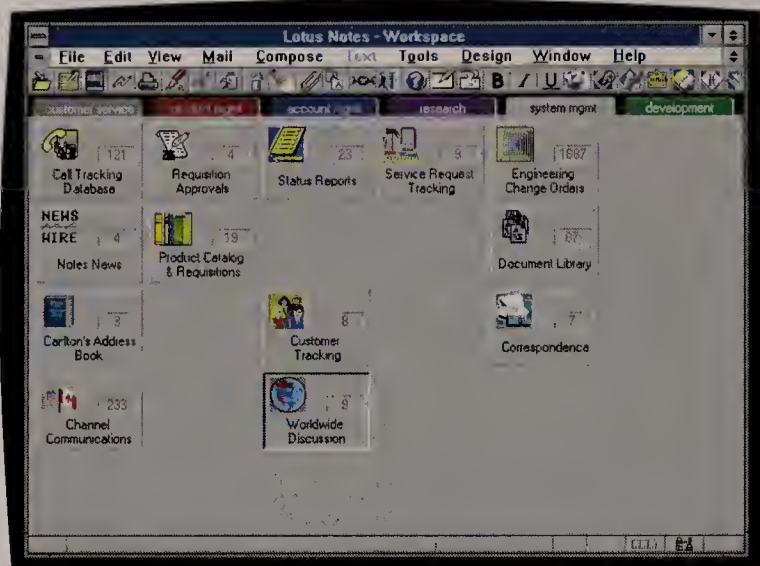


THE 1993 WINNERS

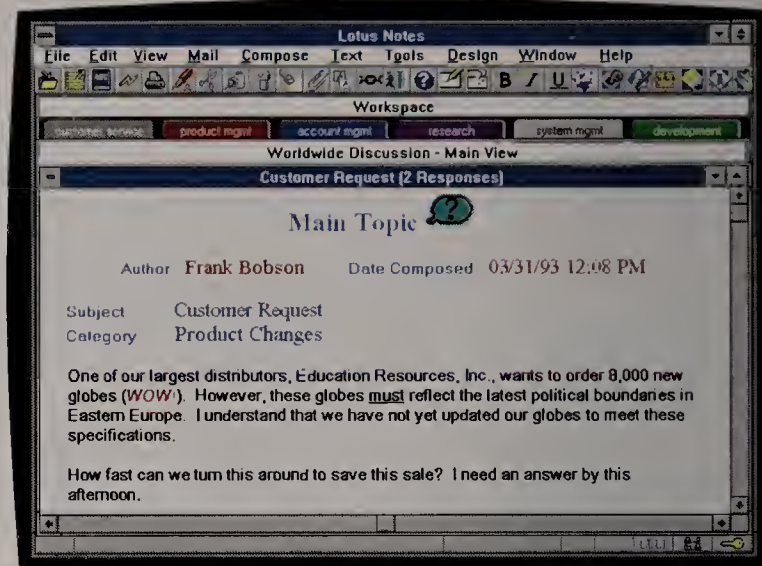
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			Xerox Corp. 38, 48, 62

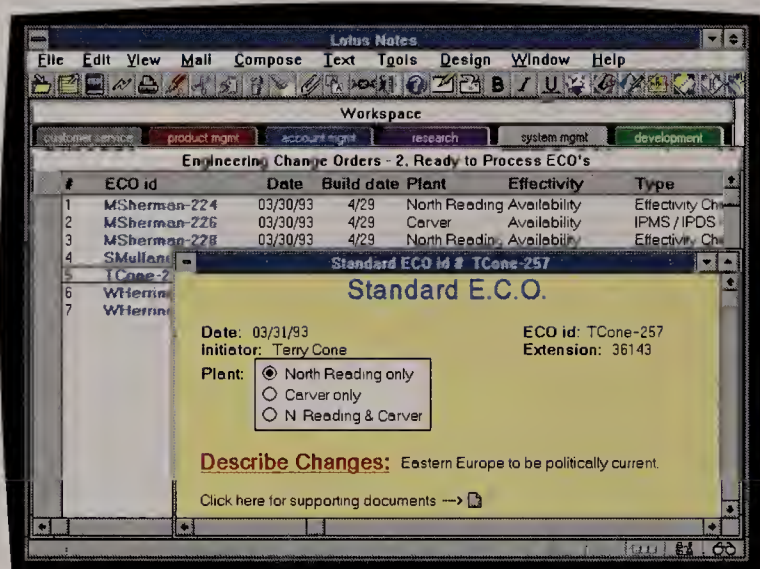
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1. This is James' Notes desktop. He uses it to access information and work quickly with people in all departments to solve problems worldwide. James clicks on the Worldwide Discussion application to catch up with important company news. The SmartIcons across the top make it even easier to work in Notes.



2. The field rep in Texas is working on a request from a customer. But to make the sale the product, in this case a globe, has to be changed to reflect the most up-to-date countries and borders. And evidently time is critical. The competition must already be in there pitching.



5. Once he has the information, he clicks on the Engineering Change Order application to request specific product changes from the plant in North Reading. He links the supporting Newswire information to the E.C.O. It will be easily viewed with a single click of a button.

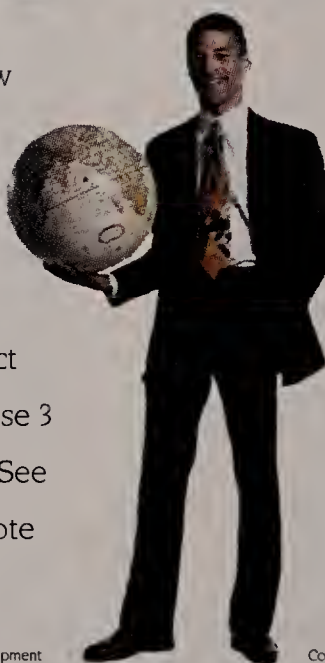


6. After lunch he opens a document from Ellen in product development who has responded with the necessary changes and scheduling information. The new art was scanned directly through Lotus Notes: Document Imaging from the art department. James approves the art for manufacturing.

HOW LOTUS NOTES RELEASE

Thousands of companies already know how Lotus Notes® helps them respond more quickly and effectively to the demands of everyday business. Now Release 3 extends that power to new dimensions.

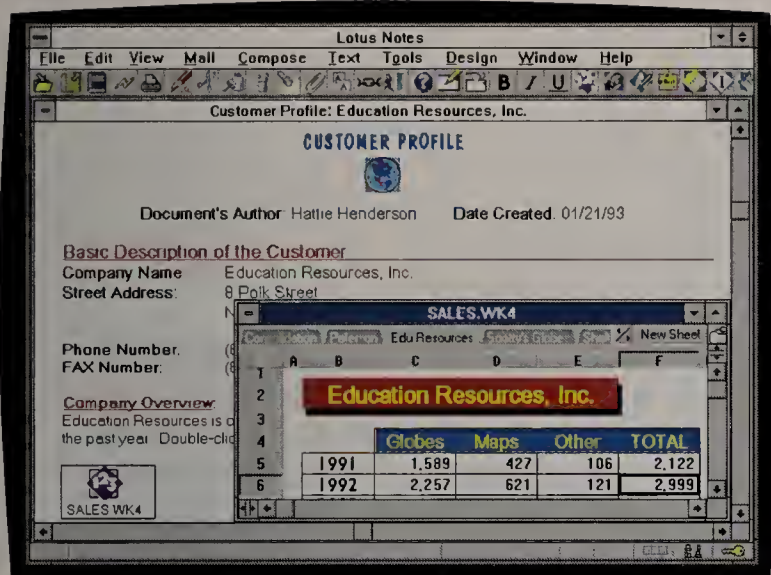
Just watch how James Carlton, a new district manager at Global Publishing, uses Notes Release 3 to solve a major global problem in short order. See how he uses information from on-site and remote locations. From both inside the company and



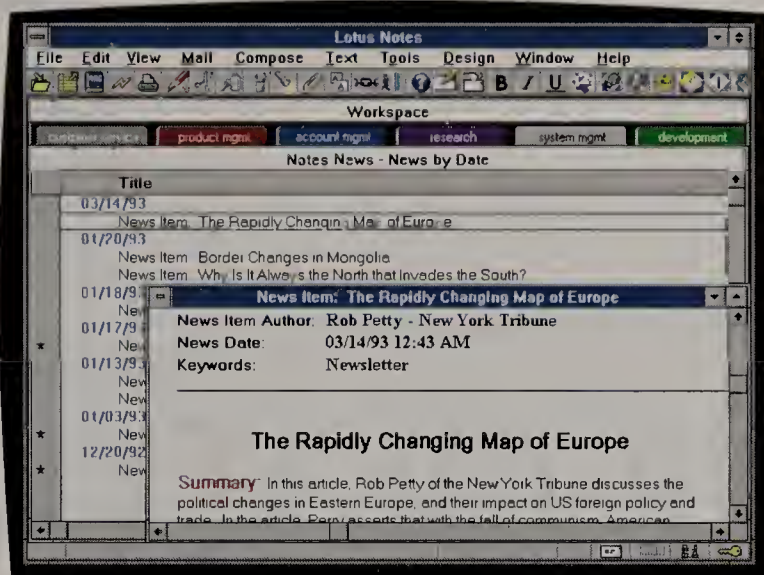
external sources. Across a variety of platforms. How he uses applications such as Account Tracking, Newswire, and Engineering Change Orders to get a new product developed fast. And how he creates an informal team spanning a range of departments to do it.

With the new Release 3, Lotus Notes now supports all the leading GUI platforms: Windows™ OS/2® UNIX®* even Macintosh®.

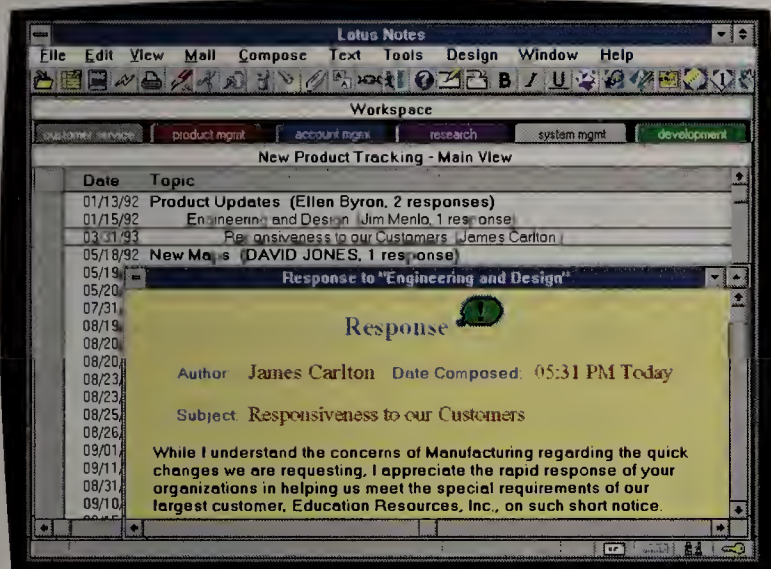
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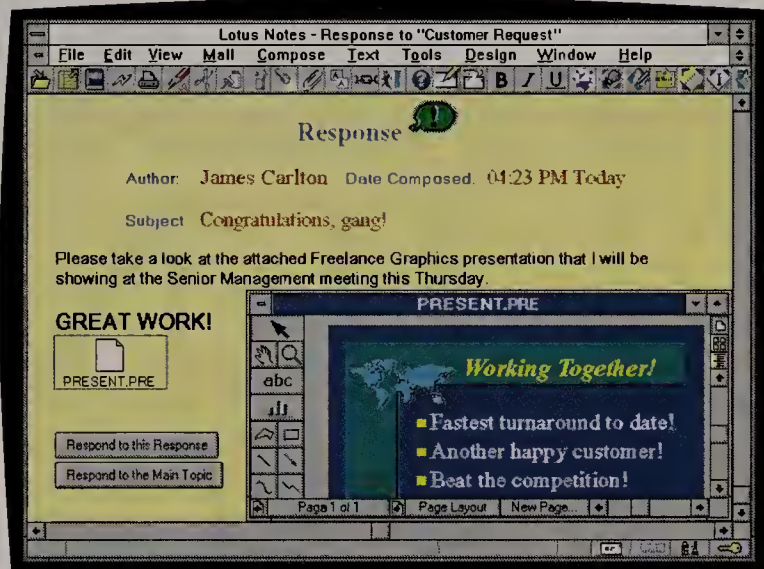
3. He clicks on the Customer Tracking application to learn more about this customer. The profile includes an attached 1-2-3 spreadsheet. He double clicks the icon to open the spreadsheet and finds that Education Resources is a very large customer that pays its bills.



4. James' next step is to click on the Newswire database for the most up-to-date report on precisely what geographical changes will have to be made on the new globe. And just how extensive they'll be.



7. On the Product Tracking application, all departments involved have confirmed that they can meet the schedule. However, they've cautioned James to be careful about rushing schedules in the future. James uses the Discussion database to acknowledge their comments and thank them for their efforts.



8. Wanting to record and promote the team's accomplishments, James puts together a presentation for senior management in Freelance Graphics. Then he posts the presentation in the Presentation database so everyone can see how the team rearranged the world to save a big account.

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HOW TO BE A GREAT CLIENT SERVER

Customers are more diverse, more demanding and have higher expectations than ever before. But if you want to succeed in business, their every wish should be your command.

BY THOMAS KIELY

Every business today pledges fidelity to its customers. Many companies actually try to uphold these vows, though their efforts often are compromised, off-the-mark, cynical, inconsistent, overstated, gimmicky, patronizing, faint-hearted...or *bollixed*, to a greater or lesser degree, by the increasingly assertive demands of increasingly fragmented customer groups.

But some organizations excel at this tricky business of serving customers. AT&T Universal Card Services' customer-service associates answer questions about balances and charges—but they have also tracked down customers' lost luggage and even made house calls (in one instance to deliver a cordless telephone to a bedridden customer). GM's Saturn division created a hot car, but it also redefined the sales experience to better accommodate customers. Employees of the U.S. Social Security Administration won't give the bum's rush to inquiries meant for other agencies—instead, they help citizens make the right contact.

The sixth annual CIO-100 is an honor roll of top-flight, customer-minded organizations and governmental bodies such as these. Selected by a panel of consultants and academic experts in the field (see Page 90 for details of the selection process), the Customer-Service 100 demonstrate that companies can wow customers (while maintaining good balance sheets) in a number of usual and unusual ways. This issue explores how information technology furthers customer service in four industry categories—consumer goods, personal services, business products and business services—and in government.

How a company provides services to its customers—or how it helps customers to fully utilize its products and services—is fast becoming a critical ingredient of corporate competitiveness, a number of industry observers contend. There is no shortage of competitors in most industries today, and customers have developed a taste for excellent service. Awash with

information about the better deals, the higher value and the greater convenience they can find elsewhere, disappointed customers have no lack of options when providers fail them.

"As products and services [such as airlines and telecommunications] become commodities, the next competitive edge becomes service," said Jagdish Sheth, the Charles H. Kellstadt professor of marketing at the Emory University Business School in Atlanta. "What used to be a give-away is now strategic."

For instance, in the highly competitive retail industry, Lands' End Inc. will go an extra mile to avoid disappointing a customer. A cop in Los Angeles calls Lands' End every other month and requests a customer rep to help him choose clothes and coordinate outfits. Often, he calls from a phone booth, and Lands' End employees have to return calls on his beeper. Another customer called to order items from a catalog that was six years out-of-date; a customer representative hunted through more-recent cata-

logs for close matches, spending half an hour on the phone with the caller.

A cursory glance at this year's CIO-100 list reveals that it is weighted toward industries where competition for customers is most intense. Six passenger airlines and nine retail firms (including mail-order) are among those honored. Add to that three hotel chains and four automobile manufacturers (two Japanese and two American). Competition in some business-product and -service sectors is equally intense: Transportation, computer technology and overnight delivery are represented on this year's list as well.

Eventually, customer service could become just as consequential in less-crowded bazaars. "Customers experience quality service from one company, then demand it from other companies [they interact with]," said Kristin Anderson, a principal at Performance Research Associates, a Minneapolis-based service-quality consultant firm, and co-author of the book *Managing Knock Your Socks Off Service*. It is a contagion: Wooing consumers and holding their loyalty is serious business.

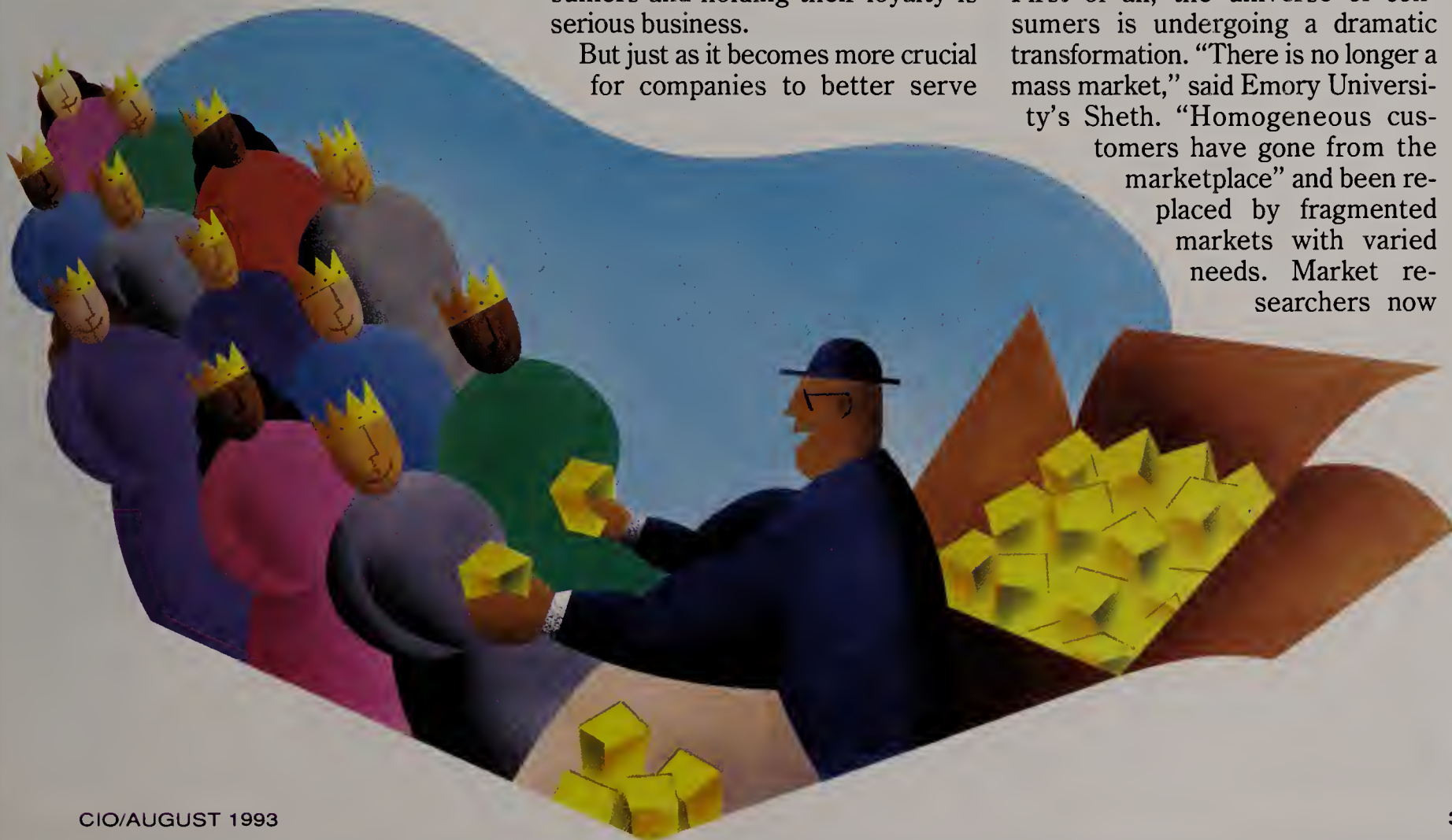
But just as it becomes more crucial for companies to better serve

THE FRUITS OF INFORMATION

IS executives were asked to name new services or benefits their companies have been able to provide to customers as a result of gathering information about them. Responses are listed in descending order of frequency.

- 1 Telephone delivery of services and information**
- 2 Special services and award programs for loyal customers**
- 3 Consulting and advisory services to customers**
- 4 More personal or individualized services**
- 5 Dealer support**
- 6 Improved handling of customer inquiries**
- 7 Inventory-management services**
- 8 Greater convenience for customers**

their customers, doing so has become more complicated than ever. First of all, the universe of consumers is undergoing a dramatic transformation. "There is no longer a mass market," said Emory University's Sheth. "Homogeneous customers have gone from the marketplace" and been replaced by fragmented markets with varied needs. Market researchers now



identify four different age groups in the U.S. marketplace: the generation born before World War I, the "silent majority" (1924-1945), the "baby boomers" (1946-1964) and the "X generation" (1965-present). Sheth notes that four adult generations have never before shared the market, and that education, mass media and differences in income have created

barriers among the four. Values differ, for instance, and time isn't the same for each generation. Increasing ethnic diversity and a broadening range of lifestyles also contribute to the fragmentation of markets.

Diversity—*difference*—will accelerate through the 1990s. The traditional great assimilator—the American middle class—is declining as a

market force. Sheth cites commonly accepted marketing predictions that the middle class will make up just 30 percent of the market by the year 2000, effectively reduced by one-half during the course of a single generation. The ranks of affluent, blue-collar and poor households will swell to accommodate the displaced middle-incomers. Each class will require dif-

THE SECRETS OF THEIR SUCCESS

Winners of this year's CIO-100 suggest 10 ways to wow the customer

1 Show concern for your customers' bottom line.

Granite Rock Co. cut its customers' trucking costs dramatically by installing an automatic card reader that dispenses crushed rock and prepares an invoice in one-third the time required by the former manual system.

2 Measure quality by how it affects the customer.

The ServiceMaster Co. involves customers in setting customer-service metrics. And several winners suggested using actual numbers to track problems on a daily basis because percentages and averages can cloud over individual customer perspective.

3 Make good use of customer inquiries/complaints.

John Deere Co.'s Lawn and Grounds Care uses LAN technology to create a closed customer-service loop that not only logs every customer inquiry, but also categorizes each and provides feedback to Deere's engineering and manufacturing group and all 1,200 dealers within two weeks.

4 Promote cooperation among dealerships.

General Motors' Saturn division uses its satellite minicomputer network to link dealerships with each other as well as with GM headquarters, fostering an unusual spirit of inter-dealer cooperation in the name of better customer service. Now dealers can find and retrieve cars and auto parts from each other's inventories to better satisfy customer needs or desires.

5 Use your database to anticipate customer preferences.

Four Seasons Hotels' guest database identifies guests who fall into certain categories, allowing it to give single women rooms near elevators rather than at the ends of hallways, and to send milk and cookies to guests with children.

6 Track and publicize your company's "vital signs."

At US Healthcare, key customer-service indicators (such as the number of claims processed and the length of processing time) are collated on a daily basis, and the results are displayed in each facility to demonstrate how well staff members are achieving corporate goals.

7 Use data collected from all your customers to advise individual customers.

ServiceMaster gathers data on the equipment it maintains and repairs for its customers. It then uses that information to advise clients who are buying new equipment on the reliability, life expectancy and features of various makes and models.

8 Make friends with your customers.

Sales representatives at Corning Inc. make "pen pals" of the purchasing agents they deal with, using E-mail to discuss golf scores, vacation plans and—not incidentally—the availability of the company's new catalog.

9 Insert IS questions into customer-service questionnaires.

Banc One Services Corp.'s IS group participates in making up the customer surveys that go out through the company's affiliates, including specific questions that can help it improve its own service.

10 Use IT to achieve continuous automatic inventory replenishment with the retailers you supply.

Procter & Gamble and 3M use EDI, POS and forecasting systems to perform this service. Consumers benefit because merchandise is always in stock; retailers benefit by expending fewer resources; and 3M and P&G bind their retail customers in tighter relationships.



CIO

THE MAGAZINE FOR INFORMATION EXECUTIVES

CONFERENCE SUPPLEMENT
TO CIO MAGAZINE

Westin Mission Hills
Rancho Mirage, California
October 17-20, 1993

CIO PERSPECTIVES SERIES SM

The Politics of IT: Reordering the Enterprise

Political Effectiveness

**A Chairman's
Worldwide IT Vision**

Whose Turf Is It Anyway?

**Politically Correct
Out-of-the-Box Thinking**

Politics & Adhocracy

**Driving
Institutional Change**

**Internal
Consultative Selling**





CONFERENCE SUPPLEMENT

Conference Overview

Joe Levy and Lynda Rosenthal

The Hottest of the Hot Seats

An article about one of the hottest hot seats in management.

Agenda

Annotated information about each session and networking activities.

Companion Program

Companions join you for conference receptions, meals and entertainment while participating in their own program featuring Hattie Hill-Storks.

Mission Hills

Rancho Mirage's top resort, plus a tennis tournament featuring Vitus Gerulaitis.

Conference Hosts

Select industry solution providers displaying key technologies.

Enrollment Form

Complete it now to ensure your enrollment.

To enroll...

Call 800-366-0246 now!

Conference Overview

If you hold the titles of CIO, senior IT executive, CFO, COO, corporate development strategist, corporate counsel, president, or CEO...or you hold responsibility for technology's contributions to your business...you will want to attend this program.

If information is power, then the CIO must become proficient as a power broker. This includes strong communicating and negotiating capabilities, developing the strategy to manage massive institutional change while protecting and empowering employees, and, above all, adroitness in the politics of information technology.

The Politics of IT: Reordering the Enterprise, the next CIO Perspectives conference, addresses these issues through the eyes of chairmen, CIOs, financial and marketing executives, and legal counsel. Our presenters will cross-fertilize the issues and examine their impact on people and enterprises in the private and public sector.

Our corporate hosts will provide a broad selection of concurrent sessions on client/server systems and applications, politics, internal executive partnerships, harmonic convergence at the desktop, middleware, rightsizing strategies, communications infrastructure, the CEO/CIO disconnect, public policy, IT best practices, and the human side of disaster-recovery. Each session will be offered twice, so you can attend up to four sessions. We'll also have "Monday afternoon at the movies," with videos of five-minute segments of the concurrent presentations to help you make your choices.

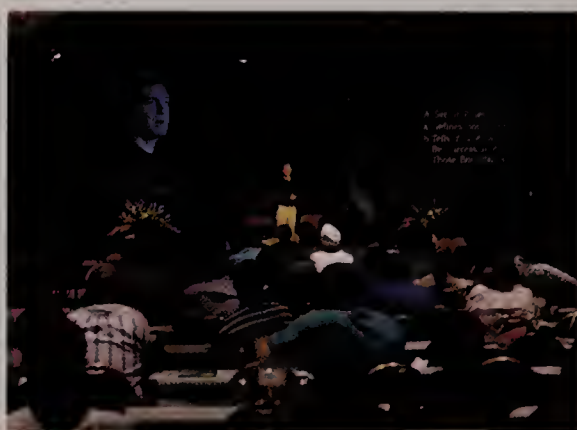
If you want to talk about change, turf and technology's politics, join us October 17-20 at the lovely Westin Mission Hills in Rancho Mirage (Palm Springs), California. You'll spend three days talking with other executives and exploring political and business realities. Complete the enrollment form on the back cover and fax it to us at (508) 879-7720. Or call us at (800) 366-0246 and we'll be happy to take your information.

Regards,

Joseph L. Levy
President & Publisher
CIO Publishing, Inc.

Lynda Rosenthal

Lynda Rosenthal
Vice President & General Manager
Executive Programs
CIO Publishing, Inc.



The Hottest of the Hot Seats



*It may be true
that politics
is a dirty job,
but now
more than ever,
IS executives
have got to do it*

BY MEGAN SANTOSUS

With its potential to empower people and foster organizational change, IT by its very nature resides in an extremely political arena. After all, information is power, and wherever power is at stake, political maneuverings—involving conflict, negotiation, alliances and adversarial relationships—are sure to follow. Yet, all too often, either CIOs do not recognize the political realities they face or they choose to ignore them. In today's climate, where change is the order of the day, such an apolitical stance will not only undermine a CIO's impact on an organization; it may very well threaten a CIO's survival.

From the Oval Office to the corporate boardroom, the old ways of doing business are no longer adequate. Today's interdependent global economy demands a new business model, one that drives information out to the front lines and in which IT plays a significant role.

David Kearns, the retired chairman and CEO of Xerox Corporation and former Deputy Secretary of Education, knows a thing or two about implementing and managing institutional change. When he took over the helm at Xerox in the early 1980s, the company was beleaguered by competition from Japan and losing market share. "I figured we'd be out of business by 1990 if we didn't change," he says. However, any policy for effecting change—particularly one intended to have far-reaching impact throughout an organization—cannot be implemented in a vacuum. Kearns had to take into consideration and enlist the support of many diverse interests to make his policies work.

Organizational change also needs a framework in which to operate. "Every organization needs a formal vehicle for change," Kearns explains. "Our method was total quality management." According to Kearns, maintaining an overall vision of customer expectations and establishing a comprehensive training program were essential elements to Xerox's successful TQM approach. In 1989, after a lot of hard



✱ CIOs must possess the political savvy to steer an IT agenda through what can be a quagmire of self-interest and recalcitrance.

We've got to convince the client that what we're going to do will make him or her more successful, more powerful and more secure. It's not enough to just introduce technology. We've got to recognize that people have fears about losing their jobs, their stature or their impact."

KEN HARRIS

work and \$175 million spent on a top-down quality training program for all employees, Xerox's effort culminated in winning the prestigious Malcolm Baldrige National Quality Award. Today the company is consistently ranked among the most admired in the United States.

As Kearns sees it, one of the CIO's most important responsibilities is to be "a catalyst for change." He envisions organizations in which employees have access to a knowledge base of information right at their desktops. "It's the role of the CIO to provide employees on the front lines with all the information they need," he said. Empowering these employees will save organizations money by eliminating layers of managers and supervisors. "But the real benefit is that the cycle times of the decision-making process are reduced."

To the uninitiated, implementing organizational change may seem like a relatively straightforward management process, but Kearns knows from experience that any number of difficulties can derail even the best-laid plans. "Changes are disruptive and are very often onerous and hurtful to people in the short-term," he said. CIOs must possess the political savvy to steer an IT agenda through what can be a quagmire of self-interest and recalcitrance. Any policy of change, even one motivated by the obvious merits of trying to keep an organization afloat, is going to encounter resistance—especially from those people among the ranks of middle management who stand to lose their power or even their jobs.

Gaining the support of upper management is critical, says Mack Hanan, president of the Greymatter Group Inc. To do this, CIOs must learn to sell their IT wares and agendas internally by developing a business focus. "IT has to become a business-driven function more than an accumulator of IT assets," Hanan explains. CIOs who emphasize only the latest whiz-bang technology are likely to meet with

deaf or at least defensive ears. "CIOs have to focus on the contributions to the business that technology can make."

The ability to form alliances is critical to what Hanan terms "internal consultative selling." While the CFO and the CEO are two of the best candidates to become allies, Hanan believes that CIOs can find valuable allies in less obvious places.

As CIOs take on the role of change agent, the political stakes are only going to increase. "Our task is to use politics in a favorable and positive way," said Ken Harris, vice president of worldwide information systems at Kentucky Fried Chicken. "So much of what goes on as politics can be negative and destructive, and we've got to get away from that if we want to succeed."

Harris recommends that CIOs take a proactive stance when it comes to working with internal clients. This requires understanding a client's needs, expectations and fears up front. For example, the COO might have certain security needs and be oriented toward achieving concrete, measurable results. "We've got to convince the client that what we're going to do will make him or her more successful, more powerful and more secure," Harris said. "It's not enough to just introduce technology. We've got to recognize that people have fears about losing their jobs, their stature or their impact."

According to Harris, the worst thing CIOs can do is to be unprepared for all the possible reactions they might encounter. "We've got to understand that there are all sorts of punji pits out there that can [undo] us," he explains. "Anticipating all the potential pitfalls in advance is necessary if we want to survive."

The key to survival, as Harris views it, is "out-of-the-box thinking" that gets the focus off the technology and emphasizes creative ways of assessing problems and opportunities. "There are some unbeliev-

ably creative ways to get away from the negative aspects of politics. Using communication, humor, persistence and inclusion will help us to survey the terrain and get a sense of what's going on."

Not all political battles or turf wars are worth winning—or even winnable. It's important not to get so embroiled in a political dispute that objectives are overlooked. "We must avoid running into a political war that is insurmountable," advises Harris. "We must keep in mind our ultimate objectives and learn to let go of some battles so we can achieve them."

Learning to cope with the politics of IT is critical for any CIO these days. As director of MIS for the City of Phoenix, Laraine Rodgers is perhaps more adept at dealing with political machinations than most because they are so overtly a part of her job. "This is an intensified political environment, and that certainly adds to the intrigue," she explains. "There is an established chain of command as well as specific rules and regulations." Yet Rodgers, who has had previous experience in the private sector, finds more similarities than differences when comparing the two arenas. "In the private sector, presenting a compelling business case is often enough to go ahead with a technology project," she explains. "But it's still necessary to be able to form coalitions and practice the fine art of persuasion" for that project to succeed.

Developing political skills begins with the recognition that politics exist everywhere and are inescapable. The much harder tasks of communicating effectively, forming alliances, perceiving roadblocks, understanding resistance and managing conflicts will follow. "Politically, the CIO is on one of the hottest of the hot seats in management," said Hanan. The key to surviving is learning the rules of the game.

Politically, the CIO is on one of the hottest of the hot seats in management."

MACK HANAN

Political Pointers

Experts offer advice on how to make friends and influence people

"Eighty percent of political problems are not problems at all, but misunderstandings," said Jim Wetherbe, director of the MIS research center at the University of Minnesota's Carlson School of Management. "One of the unfortunate things about IS people—especially those who come up through the ranks—is that they are not known for their political skills." Dr. Tony Alessandra, a principal of consultancy Alessandra & Associates, concurs. Learning to become politically astute primarily involves honing communication and interpersonal skills. "It comes down to how to deal effectively with people who have different personality styles," he says. These and other experts offer some tips for CIOs who hope to become politically savvy.

Speak a common language. People are intimidated by technobabble. Speak in comprehensible terms and you are less likely to encounter resistance and suspicion.

Be prepared for any contingency. Don't expect that everyone will be as bowled over about technology as you are. Anticipate some of the potential objections. This way you can address problems and questions as they come up.

Form alliances. You will be much more effective if you have allies you can count on. Conduct one-on-one meetings. Use the time to explain concepts and deal with any reservations that might exist.

Don't focus on technology. Instead, emphasize what technology will enable the company, department or individual to accomplish.

Know your adversary. The best defense may in fact be a good offense. If you know the position your adversary is likely to take in advance, you can better prepare yourself to counteract opposition.

M. SANTOSUS

CIO Perspectives Series

The Politics of IT: Reordering the Enterprise

OCTOBER 17-20, 1993

Westin Mission Hills
Rancho Mirage, California

AGENDA

SUNDAY, OCTOBER 17

2-6:00 pm

Conference Registration

7-9:00 pm

Reception

MONDAY, OCTOBER 18

7-8:00 am

Breakfast

8-8:05 am

Welcome & Opening Remarks

Joseph L. Levy
President & Publisher
CIO Publishing, Inc.

8:05-9 am

**Political Effectiveness Through
Communication & Negotiation**



Dr. Jim Wetherbe,
Conference Moderator
Director, MIS Research
Center
Professor, MIS, Carlson
School of Management
University of Minnesota

IS executives have experienced the most unfavorable turnover rate of any high-level management position. This turnover rate is not caused by lack of capability or effort, but rather by misunderstandings and unrealistic expectations. Strong interpersonal and communication skills are especially important for IS professionals, who are increasingly required to communicate and negotiate in business terms. This session, which sets the context for the conference, will explore basic, effective ways to enhance political and communication skills.

9-10:15 am

**A Chairman's Worldwide
IT Vision**



James Maxmin
Chairman & CEO
Laura Ashley Holdings
Ltd.

As we move toward the 21st century, value-for-money is replacing conspicuous consumption; new technologies are revolutionizing communications; the EC and Asia are emerging as economic powers; and economic growth has slowed. To compete effectively in this environment, managers must create efficient, effective organizational structures that empower

people, eliminate complexity and make customer behavior transparent. To achieve these goals, managers must use IT to generate "value-added" rather than to reduce cost, and to provide the information organizations need to survive and prosper.

10:15-10:45 am

Coffee Break

10:45-11:30 am

Whose Turf Is It Anyway?



Larry Grow
Vice President &
Director
Corporate Financial
Planning
Motorola Inc.

When downsizing a mainframe application, corporations may encounter resistance from the departments most affected by the change. Departments may vie for control over the project instead of working cooperatively to implement it, particularly when interdepartmental teamwork is not part of the corporate culture. A spirit of cooperation that begins with upper management goes a long way toward reducing internal strife. This session will explore how Motorola fostered a "turf-free" environment while downsizing its financial consolidation and reporting system.

11:30 am-12:15 pm

**Changing Tires at Warp
Speed: An IS & Technology
Rebuild Case Study**



Henry Leingang
Vice President & CIO
Viacom International Inc.

Viacom has redeveloped its applications portfolio, moved to distributed processing and client/server technology, installed 2,000 PC workstations and networked the entire enterprise—all at incredible speed. At the same time, the company has dramatically strengthened its financial structure and expanded its operations. This session will address the political and other circumstances that drove Viacom to raise the priority of IS, the changes made to the organization and its technology platforms, and the management process that made these changes possible.

12:15-1:30 pm
Luncheon

1:30-4:30 pm
Networking & Concurrent Session Snapshots
Filmed five-minute segments of Tuesday's and Wednesday's concurrent session presentations; recreation.

6:45-7:30 pm
Dinner
7:30 pm
Reception

TUESDAY, OCTOBER 19

7-8:00 am
Breakfast

8-8:30 am
IT Humor: Who Gets the Last Laugh?



Rich Tennant
Editorial Cartoonist

Cartoonist Rich Tennant explores the world of computers and technology, and the humorous effects they have on people in the workplace and at home. Using slides from his single-panel cartoon series, "The 5th Wave," Tennant brings us into the offices of BrainSoft Inc. and the Thud Software Company, where bugs are reclassified as features and vendors explain the importance of a 4GL toaster.

8:30-9:15 am
The Strategic Role of IT: A Specialty Retailing Story



Richard M. Schulze
Founder, Chairman & CEO
Best Buy Company Inc.

Best Buy is the nation's second largest publicly held consumer-electronics and major-appliance specialty retailer. The company grew from a single audio-component outlet to a chain of more than 100 stores, with 38 new locations opening in fiscal 1993 and another 40 planned for 1994. Growth of this magnitude must be accompanied by fully integrated point-of-sale and other IT systems that enable quick response to changing market conditions. Dick Schulze will discuss the strategic role of technology in realizing his vision.

9:15-10 am
Politics & Adhocracy: Doing the Right Thing & Doing Something Right



Laraine Rodgers
Director, MIS
City of Phoenix

Managing in an environment where key executives are elected and rigid regulations have ruled for decades is a uniquely complex endeavor. In Phoenix, Arizona, bureaucracy is slowly giving way to adhocracy, as empowered individuals and collaborative teams partner to provide efficient, technology-based services. Phoenix consistently ranks in the top three on lists of well-run cities nationwide. This governmental entity has a strategic vision and a sound management approach to integrating technology and quality across business functions.

10-10:30 am
Coffee Break

10:30-11:15 am
Great Expectations: The Realities of Reengineering



Michael E. Wilens
Vice President
Technology & Operations
HCIA

Expectations about the benefits and costs of IT initiatives determine whether the organization sees IT as a winner or a loser. Set expectations too low and your vision is ignored. Set them too high and you lose even when you win. Things are even more difficult for IS executives trying to eliminate "beloved" legacy systems in favor of the ethereal promises of open systems. This presentation examines the importance of expectations, using HCIA's recent experience in reengineering as a case study.

11:15 am-12:00 pm
Politically Correct Out-of-the-Box Thinking



Ken Harris
Vice President
Worldwide Information Systems
Kentucky Fried Chicken

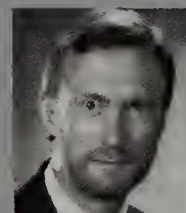
To survive, IS must become an

integral part of the organization's core business, leading the corporation in a globally competitive environment. This requires clearly defining our contributions, marketing our products in concert with business priorities and convincing the organization that we can deliver desirable results in a timely fashion—all while on someone else's turf: operations, marketing, research and development. This session offers strategies for dealing with top executives, associates and subordinates, and for recognizing the punji pits in advance.

12:00-1:15 pm
Luncheon

1:15-2 pm
Concurrent Sessions

Enterprise Engineering for Client/Server Systems



Dr. Keith Short
Director, IEF Research Laboratory & Research Director
JMA Information Engineering Ltd.
Texas Instruments

IS organizations want to build higher-quality, lower-cost, more-responsive systems. Client/server computing offers the latest attraction—but does it provide true value to the business? Information engineering is evolving to ensure that technology remains in harmony with business needs. New techniques such as object orientation and systems development from components will be critical to IS success. The convergence of information engineering, business-process reengineering and reverse engineering provide the basis for an approach to systems development pioneered by Texas Instruments: enterprise engineering.

IT Politics in the Third Millennium



Rudolph Struse
Senior Vice President
Marketing
Nielsen Marketing Research

Given the central role of IT as an agent of change, it is essential that

the CIO and other IS managers explicitly recognize and manage organizational dynamics and politics. As we move into the third millennium, successful companies are developing new structures based on participatory democratic models instead of on hierarchies and authoritarian rules. Information and information technology will facilitate the new organizational model needed to develop the flexible, global, virtual corporation.

Implementing a Financial-Management System: The New CIO-CFO Partnership



Gordon Rapkin
Vice President
Product
Development
IMRS

CIOs deciding whether to buy or build a financial-management system must weigh the trade-offs and understand end-user needs. While building the application offers the benefits of a customized system, it can take a long time, is high-risk and places the maintenance burden on IS. Buying a vendor solution may eliminate some of these concerns but does not address unique corporate requirements. The ideal application will integrate the needs of IS and finance through a layered architecture approach.

Applying *The Seven Habits of Highly Effective People* to the Politics of IT



Tim Shetler
Vice President
Product Marketing
Informix Software
Inc.

Steven Covey's book, *The Seven Habits of Highly Effective People*, serves as an excellent guide for IS executives searching for ways to do more with less. This

session is for CIOs who are dealing with user demands for more information faster, looking for more cost-effective ways to improve system performance and functionality, spending the majority of their budgets on maintenance, or working under worsening budget constraints.

It will present new ideas on creating win-win situations with both users and the CFO.

Shakeup at the Desktop: The CIO Takes Charge



Leslie Allain
Director, Operations
Viva International
Group



Ken Liming
Director, Data
Processing
Viva International
Group

"One on every desk" used to refer to a telephone; increasingly, it means a PC as well. Users receive information from voice, text and data that must be prioritized, analyzed, managed and communicated—often in real time. The CIO must consider converging and emerging technologies, migration paths, productivity measures, cost of ownership and investment protection. Call centers within the enterprise provide the most visible evidence of the cost benefits of computer-telephony integration. This session will address optimizing results within a voice- and data-network strategy.

The Challenges of Choosing a Client/Server Application

Paul Lawryk
Panel Moderator
Manager, Commercial Market
Development
Sun Microsystems
Panel to be announced

Each organization must develop and implement its own strategic plan that establishes guidelines and direction for open-systems

computing. A panel of IS executives will discuss the open-systems applications that helped their firms meet the challenges of reordering the enterprise. The audience will be able to participate in industry-specific discussions and learn the answers to such questions as: What were the benefits to the firm? Where did they find the resources? Who should be involved? Who leads? What are the pitfalls?

Value-Based IT Buying



Barry W. Sullivan
Corporate Vice
President
EDS

Today's IT buying decisions often involve evaluating features and functions amidst many market offerings. But there is a better way: one that requires a "shared vision" for IT and is based on a dialogue between buyer and seller that speaks of value and of the shared risks and rewards in realizing technology's benefits. In this session, Barry Sullivan challenges some of today's IT-buyers' paradigms.

Middleware's Leading Role in Distributed Computing



John Senor
Vice President &
General Manager
Enterprise Data
Access (EDA)
Division
Information
Builders, Inc.

Moving from the mainframe to distributed computing increases the complexity of information processing by an order of magnitude. Redistribution of data and applications across multivendor networks requires integration to make the disparate elements interoperable. A new class of systems software, called "middleware," has evolved to address this problem. Middleware is a strategic

solution for linking disparate applications, platforms and databases into an integrated infrastructure to support distributed computing. This session will discuss criteria for choosing middleware solutions.

2:15-3:00 pm

**Concurrent Sessions
Repeated**

3-3:30 pm

Coffee Break

3:30-5:30 pm

**The CIO's Responsibility in
Driving Institutional
Change**



David Kearns
Former Deputy
Secretary of
Education
Chairman (retired)
Xerox Corporation

The magnitude of change required to reshape organizations for success is so great that it is extraordinarily difficult for those on the "inside" to conceive of what is necessary to make such change happen. The CIO's responsibilities and contributions are consistent with those of all great business executives: to put a strategy and process in place; set achievable, well-articulated goals; and empower employees to succeed. David Kearns will discuss massive institutional change, the dismantling of the corporate structure and the CIO's role. A lengthy question and answer period, immediately followed by a reception, will give audience members a chance to ask specific questions of this internationally respected leader.

5:30-6:30 pm

**Reception with
David Kearns**

WEDNESDAY, OCTOBER 20

7-8:00 am

Breakfast

8-9:00 am

**Using Internal Consultative
Selling to Get High Ticket
Technology Funding**



Mack Hanan
President
Greymatter Group
Inc.

How good is the CIO at winning top management's in-your-face challenges over big-ticket IT implementations? Internal consultative selling positions the IS executive as top management's consultative partner-in-profits: the CEO's and CFO's principal adviser on the profit contributions of IT to corporate competitiveness. Participants will learn how their appropriations requests are evaluated so that they can prepare and present them in the business case format that management requires before releasing funds fast and in full.

9-9:45 am

Concurrent Sessions

**The Politics of Rightsizing:
Managing the Hierarchy of
Strategies**



Bill Sines
Vice President
Mid-Range &
Servers
IDC/Technology
Investment
Strategies

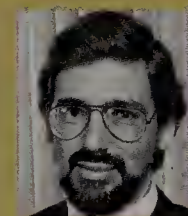
Rightsizing strategies are dictated not just by technology but by politics and expectations inside the corporation and the IT industry. Bill Sines will share research and insights on how successful CIOs adopt various technology strategies, tactically link those strategies to industry trends and organize information politics to achieve successful

implementations. The presentation will cover the politics of technology diffusion, the economics of technology adoption, the standards ladder and the hierarchy of information politics.

**Assessing Your
Communications
Infrastructure**



Dr. David A. Lubin
Renaissance
Strategy Group



Dr. Harry M. Lasker
Renaissance
Strategy Group

Many companies have found that success in business-process redesign ultimately depends on enhancing communications tools and technology to shorten analysis and decision cycles. This session will review cases in which a new communications architecture led to competitive breakthroughs. Included will be a live, interactive customer presentation using PictureTel videoconferencing. The session will also report on a working group of major international corporations that recently analyzed their communications systems and developed a model for benchmarking communications capability.

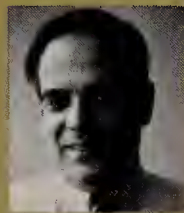
The CEO/CIO Disconnect



Alan Paller
Head of Unix
Strategies
Computer
Associates
International

The "disconnect" between CEOs and CIOs has been widely experienced but rarely publicly examined. CEOs place partial blame for the lack of dialogue on CIOs' use of technically complex language, on their penchant for promising more than they can deliver and underestimating the challenges of IT implementations. This session is a summary, with video clips and interviews, of a CEO conference on computer technology, where Fortune-1000 CEOs discussed what must be done to facilitate partnering with their CIOs.

IT, the Law, Public Policy, the FCC, Privacy & PCs



Tom Lemberg
Vice President
General Counsel &
Secretary
Lotus Development
Corporation

As IT becomes ubiquitous, new issues of law and public policy emerge. The creation of more and more "written" records affects organizations' document-retention policies and the terms of legal obligations and contracts. Intellectual property-rights protection for the creations of users and software vendors is a growing concern, as are the laws that govern the use and export of software encrypted to provide data security. And telecommunications law, especially as it pertains to mobile communications devices, is becoming increasingly complex. Lotus' own general counsel will address these issues.

Overcoming the Politics of IT: A Best Practices Approach



Paul Kanneman
Principal
Booz Allen &
Hamilton



David Howe
Principal
Booz Allen &
Hamilton

IS managers have heard ad nauseam about the need to align with the business side and leverage their relationships with top executives. But such partnerships call for a major cultural shift in most organizations. This session will discuss the results of a Booz Allen/CIO survey on best practices for managing politics. Participants will perform a self-diagnostic to see how they stack up against IT organizations that are already "one with the business," and learn how to make best practices work in individual organizations.

Managing the Impact of Open-Systems, Client/Server Implementations on MIS



Ann M. Livermore
Worldwide
Marketing Manager
Professional
Services Division
Hewlett-Packard
Company

The majority of CIOs believe in the benefits of an open-systems, client/server architecture, but aren't sure how to get there. They want vendors to provide a road map while at the same time avoiding vendor dependence. IS managers must choose the right products and standards to integrate software and incorporate new technologies while

protecting current and future employee and system investments. This presentation will use customer examples to explain the target model-development process for an open-software architecture.

The Human Factor: An Unwritten Chapter in Disaster-Recovery Planning for Business Continuity



Bill Haag
Senior Director
Information
Systems
Racal-Datacom



Bill Lott
Manager
Network Services
Racal-Datacom

In the aftermath of Hurricane Andrew, Racal-Datacom faced the immense challenges of restoring its own and its customers data centers and returning to normalcy. Impassable roads, closed airports, nonexistent communications and martial law forced the company to rethink both the economic and human factors of maintaining business continuity in the face of disaster. The company concluded that personnel, rather than equipment or facilities, are the most likely point of failure during a crisis.

10-10:45 am
**Concurrent Sessions
Repeated**

10:45-11 am
Coffee Break

11 am-12:00 pm

**Superior Relationship
Strategy Skills**



**Dr. Tony
Alessandra**
Alessandra &
Associates

Success in any interpersonal endeavor—whether it's managing, selling or other modes of communicating—requires superior relationship skills. Tony Alessandra will reveal his innovative techniques and strategies for more successful interaction with others. Alessandra will describe the four basic behavioral styles: their strengths and weaknesses, likes and dislikes. Audience members will learn to identify their own and others' behavioral styles and to improve rapport and compatibility with all four.

12-12:15 pm

Summary

**RANCHO MIRAGE'S
Mission Hills**

Palm trees, wildflowers, painted canyons and unspoiled beauty surround the Westin Mission Hills. The hotel's classic Moroccan design, complemented by the desert, offers a quiet, comfortable setting that provides an environment conducive to reflection, learning and networking. Golf, tennis, volleyball, croquet, weight training and steam rooms provide leisure activities, while the 75,000 square foot conference center will accommodate all our meeting needs.

*Tennis Clinic & Round Robin
Hosted by Computer Associates*

A special tennis clinic and round robin, directed by tennis great, Vitus Gerulaitas, will take place on Monday afternoon. Participation is first come, first serve.



Companion Program

Schedule

Sunday, October 17

7-9:00 pm

Networking Reception

Monday, October 18

9-10:00 am

Companion Breakfast

12:30-1:30 pm

Luncheon
with Conference Participants

1:30-5:30 pm

Aerial Tramway &
Celebrity Home Tour

6:45-7:30 pm

Reception

7:30

Dinner & Entertainment

Tuesday, October 19

7-8:00 am

Breakfast with
Conference Participants

9:00 am-3:00 pm

Walking the Tightrope of
Success with Hattie Hill-Storks

5:30-6:30 pm

Reception with David Kearns

Wednesday, October 20

7-8:00 am

Breakfast with
Conference Participants

Reacquaint yourself with old friends and meet new ones at an informal Monday morning breakfast for companions.

Monday afternoon we will ride the Aerial Tramway, the longest double funicular tramway in the world, and one of the most popular and exciting experiences in Palm Springs. We will view a sampling of celebrities' homes and have a guided tour of the estate of Darryl F. Zanuck, producer of the first talking movie and founder of Twentieth Century Studios.

*On Tuesday, Hattie Hill-Storks, personal development consultant, speaker and author, will lead a companion seminar from 9:00-3:00 on **Walking the Tightrope of Success**.*

This program is designed to provide mind, body and spiritual renewal. The session will include how to recognize when you're sabotaging relationships, what to do when you feel totally alone, and the three forces which empower any relationship.



Corporate Hosts

BOOZ·ALLEN & HAMILTON

Booz Allen & Hamilton is a global management and technology consulting firm dedicated to helping senior executives improve the performance of their institutions. We've worked on IT assignments since the computer age began. We understand technology. Even more important, we

understand the business itself. We balance the concerns of both business and information executives on every IT assignment by taking a STRATEGY-DRIVEN SYSTEMSSM approach: weighing the needs of the business and applying the right technologies to further the overall goals of the enterprise.



Computer Associates International, Inc. is the leading independent software company in the world. CA develops, markets and supports integrated systems management, information

and business applications software for a broad range of mainframe, mid-range and desktop computers. CA serves the international marketplace through offices in 26 countries.



TAKE ADVANTAGE OF CHANGE™

EDS, Inc. is a leader in applying information technology to the needs of businesses and governments worldwide. Dallas-based EDS has spent over 30 years helping customers achieve their business objectives. The company provides the following services:

consulting, systems development, systems integration, systems management and process management. With operations in more than 30 countries, EDS has over 70,000 employees. The company posted 1992 revenues of \$8.2 billion.



Hewlett-Packard Company is an international manufacturer of measurement and computation products and systems recognized for excellence in quality and support. The company's products and services

are used in industry, business, engineering science, medicine and education in approximately 110 countries. HP has 92,600 employees and had revenue of \$16.4 billion in its 1992 fiscal year.



IDC/Technology Investment Strategies helps corporate executives and managers around the world make their strategic business decisions about information technology. As a subsidiary of International Data Group (IDG), the world's leading provider of information on IT, TIS is well connected to the largest

global network of information resources. TIS draws from this vast information network, spanning 49 countries, to provide its clients with a comprehensive set of research and consulting services dealing with the most critical information technology management issues of the day.



IMRS develops software for enterprise-level financial management applications in a client/server environment. Founded in 1981, the company's integrated approach to financial management provides access to summarized, enterprisewide views and underlying supporting detail. IMRS focuses on end user needs

while working in partnership with IS professionals to address the diverse transaction processing, accounting, and financial information needs of large corporations. With availability of worldwide support and services, IMRS provides a complete international solution set.

Information Builders

Information Builders Inc. has helped MIS organizations develop and maintain mission critical information systems for nearly 20 years. Today, more than one million people around the world use Information Builders' products, such as FOCUS[®], the number one fourth-generation language for application development and decision support. For client/server computing, Information Builders' Enterprise

Data Access (EDA)/SQL gives users of SQL-based applications and tools access to relational and legacy data they could never reach before. With expert consultants and comprehensive educational curriculums, Information Builders delivers solutions that address today's information management problems with the flexibility and longevity for tomorrow.



Informix Software, Inc. provides the most complete and productive database application technology to build, deploy, run and evolve applications. Informix products include powerful distributed database management systems, robust application development tools, and graphical- and character-based productivity software for delivering information to every significant desktop platform.

With corporate headquarters in Menlo Park, California, Informix has European headquarters in London, and Asia/Pacific headquarters in Singapore. Informix Software, Inc. is a leading supplier of information management software providing solutions from the database through the desktop.



Lotus Development Corporation, founded in 1982, provides software applications and services that meet the evolving technology and business needs of individuals, work-groups and entire organizations. During the 1980s, Lotus built its success by delivering innovative productivity tools to individuals using personal

computers. With the introduction of Lotus Notes, a group collaboration software for networked PCs, the company is delivering applications in an open workgroup environment and addressing the primary imperatives for computing in the 1990s—networking and organizational computing.



Nielsen Marketing Research (NMR) is the recognized global leader in marketing and decision support information. NMR provides customers with the highest quality information and decision support services using AI-based software, visual programming environments, EIS and ad hoc analysis

and delivery systems. From its world headquarters in Northbrook, Illinois, Nielsen supplies a wide range of services and technologies that help consumer-goods manufacturers and retailers develop insights to make better business decisions.



PictureTel Corporation, the world leader in videoconferencing technology, is "redefining the way the world meets." The company develops, manufactures and markets a full range of visual communications solutions from the desktop to the auditorium, supported by offices in over 100 cities in 50 countries. To

provide products and solutions that are in step with the strategic technologies of the '90s, PictureTel is working with the leaders in computing, telecommunications, software and the most respected organizations in a variety of vertical markets.

Racal-Datacom™

Racal-Datacom is an independent provider of data communications products, systems and services designed to meet the business objectives of corporations and government organizations. The company offers solutions for the implementation, integration, management

and support of enterprise networks from the desktop through local area and wide area networks. Racal-Datacom offers a broad range of LAN/WAN products, all managed by a single network management system and all supported by a full range of network services.

ROLM

A Siemens Company

ROLM is a wholly owned subsidiary of Siemens AG, a \$52 billion global electronics leader—the largest European-owned computer manufacturer and the world's leading maker of PBXs. ROLM is the leader in developing solutions that remove barriers between telecommunications and other information

and productivity tools, providing voice/data integration at the network, system, LAN/work group, and individual levels. Business solutions provided by ROLM help customers impact their bottom line and improve business efficiency by creating information and communication synergies.



According to market research firms, **Sun Microsystems** is the world's leading workstation and server vendor and #139 on the Fortune 500. Unknown until the early 1980s, computer workstations now represent the fastest-growing area in the industry by far. Because of their power, compact size and lower

price, desktop workstations are rapidly replacing larger systems—minicomputers and mainframes—as well as smaller systems—PCs—in companies all over the globe. Today, a Sun workstation can be faster than a large mini computer, performing 500 million calculations in the time it takes to read this last word.

Texas Instruments Inc., the I-CASE technology leader, is a high-technology company with sales and manufacturing operations in more than 30 countries. TI develops, manufactures and markets semiconductors, defense electronics systems, software productivity tools, computer systems and

peripheral products, custom engineering and manufacturing services, electrical controls, metallurgical materials and consumer electronics products. At Texas Instruments, technological leadership and persistent commitment to quality have been the keys to success.



CIO PerspectivesSM

The Politics of IT: Reordering the Enterprise

Westin Mission Hills, Rancho Mirage, California

Sunday, October 17 through Wednesday, October 20, 1993

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Please complete this form in its entirety. Thank you.

Name _____

Title _____

Company _____

Address _____

Mail stop _____

City _____

State _____

Zip code _____

Phone _____

Fax _____

What is your industry? _____

Your name as you want it to appear on your badge _____

Name of companion (if attending) _____

Additional Company Enrollment

The following people from my company also plan to attend:

Name _____

Title _____

Mailstop _____

Phone _____

Fax _____

ENROLLMENT FEES:

Prior to July 31, 1993

- **IS Practitioners/Executives:**

If you are a CIO, IS executive or hold an other executive position, the fee is

\$1,095.

- **Government/Military:**

The fee, which includes your hotel for three nights, is

\$1,495.

On/After August 1, 1993

- **IS Practitioners/Executives:**

If you are a CIO, IS executive or hold another executive position, the fee is

\$1,195.

- **Government/Military:**

The fee, which includes your hotel for three nights, is

\$1,595.

- **Sales/Marketing/Consulting:**

If you are in a sales, marketing or consulting position, the enrollment fee is

\$5,000.

OTHER ACTIVITIES:

Monday afternoon activities include:

- ☐ Golf Tournament \$126
- ☐ Tennis Tournament Complimentary
- ☐ Companion Program \$275.

Companions must be enrolled in this program to attend any conference-related functions. (Includes all scheduled food and beverage functions, a trip to the Palm Springs area and a full day seminar titled "Walking the Tightrope of Success" by Hattie Hill-Storks. It does **not** include conference session attendance.)

PAYMENT INFORMATION:

☐ Check Enclosed ☐ Bill Company

☐ Credit Card

☐ P. O. # _____

☐ AMEX ☐ VISA ☐ MC

Card # _____

Expiration date _____

Signature _____

ATTIRE:

Casual! Please, no suits, ties or business attire!!

HOTEL ACCOMMODATIONS:

A block of rooms has been reserved at the Westin Mission Hills. We urge you to make your reservations early by calling the hotel at 800/999-8284. Be sure to identify yourself as part of the CIO conference to receive the conference rate. Hotel reservations/cancellations and charges are your responsibility, except for government/military participants.

TRANSPORTATION:

American Airlines is the official conference carrier. Call American at 800/433-1790 and reference Star File #S1103D4. AVIS is the official car rental provider. Call AVIS at 800/331-1600 and reference K027811.

PAYMENT:

All enrollment fees must be paid by 10/9.

Fee includes conference sessions, concurrent sessions, corporate host displays, conference materials and scheduled food and beverage. Transportation and hotel are your responsibility.

CANCELLATION:

You may cancel your enrollment up to 10/8/93 without penalty. **No refund or credit will be given for cancellations received on or after 10/9/93.** You may send a substitute in your place.

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ferent services and hold dissimilar expectations about service delivery.

"We're starting to observe that there is not a single voice of the customer," said David Reibstein, the William S. Woodside Professor and professor of marketing at the University of Pennsylvania's Wharton School in Philadelphia. "There are customer *voices* now, and perhaps companies have to become more selective about which customers they serve." The Marriott Corp.'s Hotel division, for instance, has targeted the business traveler as the customer to delight. The hotel chain aims to attract other customer segments, too, but the lion's share of Marriott's marketing budget and a number of competitive services are aimed at the bread-and-butter business traveler.

Government faces the same pressures to provide better service to more-demanding, more-diverse customers, notes Anthony Trenkle, project manager for the Service to the Citizens project of the U.S. General Services Administration. (One could speculate that cynicism toward government advances as citizens contrast the quality services they purchase from the private sector with bureaucratic public disappointments.) Governments can't retreat to the niches. Also, they must grapple with scarcer resources. To do

more with less, they will consolidate agencies, reengineer processes and seek service partnerships with industries and associations, Trenkle predicts.

"Customers experience quality service from one company, then demand it from other companies they interact with."

-Kristin Anderson



Still, as diverse and demanding as customers have become, they're not as fickle as the press portrays them. The Technical Assistance Research Programs (TARP), an Arlington, Va.-based management consulting firm that has been studying customers for two decades, contends that many dissatisfied customers do not sever ties abruptly. A company unhappy with a supplier will begin to purchase parts from another source but still maintain some business with the original supplier. A frustrated banking customer might switch his

or her savings accounts to another bank but leave the checking account where it is, at least for a while. Customers rarely announce their defection. If pressed, they will often dissemble to avoid confrontation.

"A small percentage of customers won't defect at all, no matter how much you beat up on them," said Gary Bargatze, a senior vice president at TARP. (TARP estimates that every complaint the average business receives represents about 2,000 unvoiced complaints.)

Moreover, customer complaints shouldn't always be accepted at face value. A major car-rental company, reacting to customer-survey complaints about long waits in lines, decided to purchase more cars and hire more customer-service employees—a costly investment. But follow-up surveys revealed that customers were defecting to competitors because of a high incidence of rental-car breakdowns, not long lines. Yet this had not ranked as a top complaint in the original survey.

"Companies address problems based upon the frequency of the complaint," Bargatze said. "The squeaky wheel gets the oil. But what companies are doing, then, is addressing the gripes and missing the deal breakers."

There are worse customer-service sins than misreading complaints. Companies, or their representatives, disappoint customers by failing to keep promises ("I'll call you back after I talk to my supervisor...") or by willful disregard. A department-store customer may have to wait several minutes for a sales clerk. A citizen may telephone a city agency at midday, only to hear the phone ring interminably. A newly purchased car may have a defect, requiring many trips to the dealer's service department. Yes, the repairs are covered by warranty, but the inconvenience is damnable.

In contrast, consider this: An AT&T Universal Card customer, visiting Las Vegas, realized that he had lost a suitcase. Apparently, he left it in a hotel room in San Diego the day before he drove to Nevada. Unfortunately, he couldn't remember the

TOP PRIORITIES

IS executives were asked to name their top priorities in helping to improve their organizations' customer service. Responses are listed in descending order of frequency.

- 1 Provide front-line employees with pertinent information**
- 2 Lower costs while improving effectiveness through technology**
- 3 Support line departments and business units in providing customer service**
- 4 Provide customers and constituents with access to information**
- 5 Maintain reliable systems and service**
- 6 Support business strategy**
- 7 Give IS a customer-service/market-driven orientation**
- 8 Supply managers with technology, tools and information to enhance customer service**
- 9 Speed response time to customers**
- 10 Make it easy for customers to do business with the organization**



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MEASURING SUCCESS

IS executives were asked to name the mechanisms used by their companies to measure the quality of their customer service, and the key indicators of their success. Responses are listed in descending order of frequency.

FEEDBACK MECHANISMS

- 1 Customer surveys by own organization*
- 2 Unsolicited complaints
- 3 Conversations with customers
- 4 Customer surveys by independent organizations
- 5 Feedback from sales staff, dealers, customer-support staff
- 6 Comment cards
- 7 Unsolicited letters and telephone calls

INDICATORS OF SERVICE QUALITY

- 1 How well company handles incoming calls from customers**
- 2 Turnaround time on orders
- 3 On-time delivery
- 4 Responsiveness to customer inquiries
- 5 Product availability

* Cited more than three times as often as the next most-frequently mentioned item

** Cited twice as often as the next most-frequently mentioned item

name of the hotel—so he called the card company. A customer associate searched his transaction records, but the hotel wasn't paid for on his card. Still, the customer remembered a street and a restaurant near the hotel. On the customer's behalf, the AT&T employee telephoned tourist agencies in San Diego, compiled a list of hotels in the area, then contacted each hotel on her list until she found the right one—and the customer's bag. Then she arranged to have the customer's bag shipped to his home in Rhode Island.

Doing customer service right requires commitment and, usually, a steady hand at the top, say a number of experts in the field. To begin, managers should try to gain an apprecia-

tion of customer experiences from a customer's point of view. Although traditional demographic studies and surveys are useful, companies can miss important information about how customers use products or about the specific needs or desires of customers. To get closer to the real lay of the land, managers and supervisors of all ranks at Continental Cablevision Inc. regularly take turns manning the customer-service lines and doing tours of duty in the field.

Companies should assess the services they provide in three layers, says Performance Research Associates' Anderson. First, a company must perfect services essential to its business. For instance, Continental Cablevision's core services include providing reliable cable transmission to homes, satisfactory installation or repair work, and accurate billing.

Terrific core services just get companies into the game, Anderson says; value-added services make them competitive. For instance, with Continental Cablevision's "video house call" program, customers seeking information (such as how to hook up a VCR) call the company and tune their boxes to channel 64. Their phone conversations are private, but customers can both see and hear the service representative—who can demonstrate how to hook up that VCR.

But it is the third layer of service ("above-and-beyond service," Anderson calls it) that attracts and holds customers. A Continental Cablevision customer called the video house-call service and received an answer to her problem. But in the course of the conversation, the customer discovered that she and the service employee shared a hobby: knitting. A few days later, the customer received a call from the cable-company service employee. "Turn on channel 64," the employee told her. When the woman tuned in her television, she saw the employee demonstrate a new knitting stitch.

Obviously, much of this kind of service depends upon the capabilities of customer representatives. 3M developed a set of core competencies—including problem-solving, communica-

tion and interpersonal skills—that are used to measure the performance of customer-service employees. Lands' End will not hire customer-service representatives from outside the company—only experienced sales employees get the nod for these jobs (and they receive considerable customer-service training).

"When you visit a company with a

**Terrific core services
just get companies into
the game; value-added
services make them
competitive.**



good customer-service reputation, you can feel the difference in the culture," said Richard Whiteley, vice chairman of The Forum Corp., a Boston-based training and consulting company. The culture fosters strong links among the customer, the fundamentals of the business and work processes, he said.

For instance, last winter a Lands' End service rep met an impossible delivery deadline for a Florida customer—at great cost to the company. The customer had ordered a winter jacket for his child, and it arrived with a defective zipper the day before the family was scheduled to travel to the snowy northeast. The Lands' End employee located a replacement jacket from inventory, drove an hour from company headquarters, in Dodgeville, Wis., to the airport in Madison and shipped the jacket to Florida on the next available flight.

Doing this cost the company far more than it earned from the sale—but it was an investment in the company culture, said Deb Runde, an administrative assistant for public and investor relations for Lands' End. The incident demonstrated to employees that "the customer is *always* right," she said. ☐

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A MODEL WORTH COPYING

*Xerox takes its
customers'
satisfaction so
seriously that it has
completely
reorganized itself in
order to serve them
better*



BY DAVID H. FREEDMAN

Xerox Corp. has never been at a loss for slogans. Draped across the cavernous lobby of the company's headquarters in Stamford, Conn.—a lobby whose metallic, angular surfaces create the sense of being inside a copier—is an enormous banner proclaiming, "The Document Company." Another slogan, "Team Xerox," crops up throughout the firm's literature. But Xerox's true motto, the mantra with which it is consumed and with which it mercilessly bombards customers, rarely turns up in writing or commercials. It

is this: "Are you satisfied?" "Almost all of our conversations with customers include that question," said Patricia Wallington, Xerox's CIO.

Of course, every company today talks about wanting to satisfy the customer. But Xerox has been rebuilding itself around that mission, which at Xerox has less to do with providing better copiers than with providing better customer service. Almost any manager in the company will tell you that information technology should get much of the credit for the mission's success. The exception is Wallington, who seems to prefer to





discuss just about every aspect of the business except IT.

And that may be the secret of her own success. Wallington has been implementing a new vision for IS, an almost paradoxical situation in which information technology becomes more important by being pushed into the background. At Xerox, it has become

organizationally and functionally unclear where IT leaves off and business processes begin. Yet there is no question that IT is critical to the company's ability to ruthlessly track down and wipe out every element of customer dissatisfaction through excellent service. Said Xerox Chairman and CEO Paul Allaire: "Our information

XEROX BEGAN LIFE as *The Haloid Co.* (left), a manufacturer of photographic paper. **DAVID MYERSCOUGH** (above left) and **DAVID GRAINGER** (above right): Workgroups tailor their service to individual customers.

PHOTO LEFT COURTESY OF XEROX CORP., PHOTO RIGHT BY FOREST MCMULLIN



systems allow us to relate whatever it is we hear about dissatisfaction to its causes in any aspect of the business."

Xerox's focus on achieving new levels of customer service is really the second phase of a corporate renewal begun in the early 1980s. At that time, a relatively slow-moving, complacent Xerox lost a large chunk of market share to Japanese companies. Under then-CEO David Kearns, Xerox's response was to

PATRICIA WALLINGTON visits account sites to find out what problems, if any, might be hampering customer satisfaction.

embark on a multifaceted program aimed at raising product quality, customer satisfaction and profits. The efforts paid off, but by the time Allaire came in as president in 1986 (he was named CEO in 1990), there was concern that the company would lose momentum if it didn't do a better job of setting priorities.

What should the company focus on? Profits? Quality? In the end, Allaire decided it should be customer satisfaction.

That new emphasis led to a number of changes. What customers really wanted from Xerox, managers realized, was not just better copiers but better, broader service. "Customers were identifying a need not only to produce documents but to enhance them and to remove bottlenecks in the process," explained

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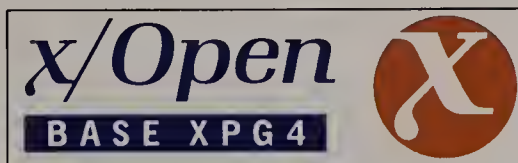
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Wallington. And, of course, customers wanted their equipment to continue to run smoothly. For the first time, Xerox began to see itself as more of a service company.

To provide higher levels of service, Xerox needed a new organizational structure that could better identify and more quickly respond to customers' needs. Last year, the company recast itself into nine new divisions, each focusing on a different area of business, including printing systems, copiers and software.

These changes were reflected in IS. Each division was given its own

"I'm a little like a coach. I try to put things into business perspective while empowering employees to bring information to the people who really touch the customer."

-Patricia Wallington



TECHNICAL PROFILE

Xerox Corp. produces photocopiers and other equipment and services for the document-processing market. The company earned \$600 million on \$14.7 billion in revenues in 1992. It is currently in the process of decentralizing control of its sales and support operations so that the 70 districts will have key planning and decision-making authority. IT is being reorganized accordingly so that, in the future, a growing number of applications will reside on district-based client/server systems; these systems will upload data to centralized mainframes for consolidation.

Large and Midrange Systems: Xerox's U.S. data center in Rochester, N.Y., operates three Amdahl 5995 mainframes and one Amdahl 5890 mainframe, all running MVS and providing a total computing capacity of 123 MIPS in support of 48,000 terminals in the United States. These are supplemented by a set of mid-range systems comprising four Digital Equipment Corp. VAX 6000s, a Data General 7800 and a Hewlett-Packard 3000. The data center supports most of the company's major applications, including

billing, payroll, field support, customer information and telemarketing. Overseas operations are currently supported by a number of data centers in different countries, but most of these are being consolidated into a single data center under construction in England.

Client/Server Systems: All 70 U.S. districts have servers consisting of one or more Sun 480 workstation running Unix. Xerox plans to replace these with workstations that support IBM-compatible software.

End-User Computing: There are some 35,000 end-user workstations throughout Xerox worldwide; most of these are either Xerox Stars or Sun Sparcstations custom-manufactured for Xerox, and all run Xerox GlobalView office software. In addition, the company estimates there are several thousand PCs.

Networks: Large and mid-range systems are on an SNA network; client/server and end-user computers are tied together through Ethernet LANs and Xerox's XNS networks. The company plans eventually to migrate to OSI with TCP/IP.

CIO, who reports directly to the division president. Wallington became the corporate CIO, taking over the job from Patricia "Tosh" Barron, who became president of the Office Document Products division. Wallington, a Wharton School graduate who left the CIO slot at Massachusetts Mutual Life Insurance Co. in 1989 to become CIO of Xerox's marketing function, took over an IS organization in flux. Though the organization was moving away from its mainframe-oriented, centralized mentality, it was still perceived as being unable to quickly help business units solve problems.

"We needed to raise the level of awareness of the operating manager [concerning] the importance of IT," said Allaire. "We wanted [the IS function] to be pulled into the business units rather than to have to push itself in."

To speed things up, Wallington recruited several Xerox line managers to fill high-ranking roles in IS. Soon IS decisions were being made jointly by business-unit and IS managers. And everyone was on the prowl for opportunities to employ IS in making what Wallington calls "non-disruptive" changes—changes that fit smoothly into the business units' operations while improving customer satisfaction. "That's the number-one objective," she said, pointing to a poster that says as much on one of her otherwise unadorned office walls.

Wallington's emphasis on bringing the IS function into the business units is even reflected in Xerox's organizational geography. While Wallington is based at corporate headquarters, the rest of IS is ensconced in Rochester, N.Y., near the divisional headquarters, customer operations and the company's largest manufacturing facilities. This helps Wallington concentrate on corporate business strategies while the rest of the IS organization focuses on supporting people on the front lines. "I'm a little like a coach," she said. "I try to put things into business perspective while empowering employees to bring information to the people who really touch the customer."

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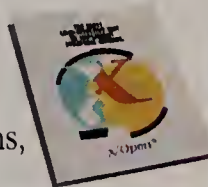
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Higher-end copiers now have an artificial-intelligence-backed chip that monitors operating conditions such as the frequency of paper jams or bad copies. If the problem occurs with more than a predetermined frequency, the machine alerts a service center via a phone line.



At the same time, Wallington resists the notion that she manages loosely. To stay in close contact with her IS team, she visits Rochester an average of twice a week, often holding informal meetings on the plane. "You have to be there in person, walking around, showing visible appreciation for your people's efforts," she explained. "You have to be able to see a person roll his eyes in response to a comment."

In keeping with her stated focus, Wallington is more comfortable talking about business issues than about IT. And no matter what issue comes up, the discussion always returns to customer satisfaction. She likes to point out that Xerox was the first manufacturer to offer a lifetime "total satisfaction" guarantee: At any time, even years after the purchase, a customer can return a Xerox product for a replacement without having to give a reason. "We were planning to offer a money-back guarantee," recalled Wallington, "but customers told us they didn't want their money back; they just wanted a product that worked."

Not that Wallington or anyone else at Xerox waits for customers to complain. The company does a lot of asking. Wallington occasionally heads over to a service center, dons a telephone headset and fields complaints; she has talked customers through copier jams.

She also has two "accounts"—large customers for which she acts as a sort of ambassador for senior management. Visits to these accounts serve two purposes. She can find out firsthand what problems, if any, might be standing in the way of

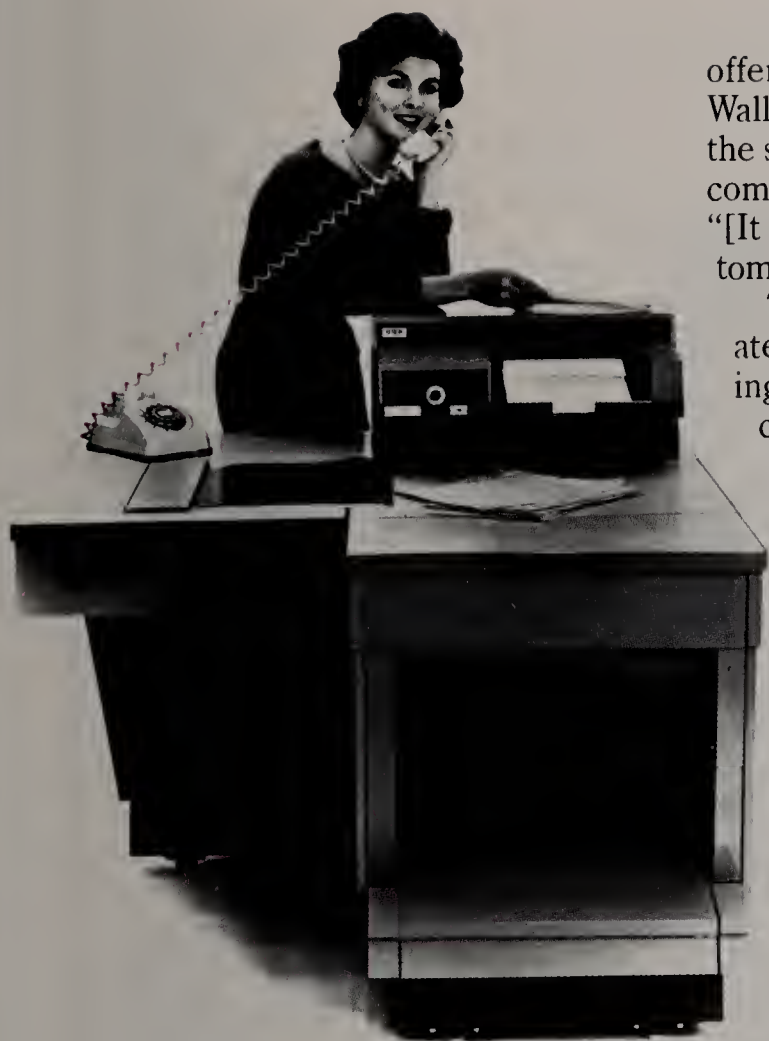
customer satisfaction and make sure the right resources are immediately made available to solve those problems. "As a senior manager, I can remove barriers that the account reps and service people might not be able to overcome," she said. Secondly, by meeting with senior managers at her accounts, Wallington is exposed to a broader, higher-level view of customers' needs and business plans.

And then there are the customer-satisfaction surveys. Sent out at the rate of about 45,000 per month, the sur-

veys are, to a certain extent, both the starting and ending points of Xerox's efforts. They alert the company to problems and, later, let Xerox know if its efforts to address those problems were successful. "Every single dissatisfied customer is called, and their complaints are addressed," noted Wallington. More importantly, she pointed out, Xerox uses the surveys to root out "dissatisfiers"—product or service shortcomings that irk large numbers of customers.

There are plenty of information systems that allow Xerox to





THE FIRST XEROGRAPHIC COPIER (left) was built in 1949. The 914 (above) launched the modern Xerox Corp. a decade later with its revolutionary dry process, which did not require treated paper. Today's 5775 (below) produces 7.5 color copies a minute.

offer customers better service, but Wallington says they shouldn't be in the spotlight. "Technology is a single component, an enabler," she said. "[It doesn't] directly create customer satisfaction."

The best systems indirectly create customer satisfaction by speeding repairs, shortening order cycles or making life easier for Xerox employees. "Studies have shown that employee satisfaction is a key driver of customer satisfaction," she explained. Even the company's IT-driven telemarketing system is seen by Wallington not so much as a sales tool as a way of "touching the customer twice a year to ask about their needs"—and, of course, to ask them if they're satisfied.

Senior line managers at Xerox are considerably less reticent than Wallington on the subject of IT's contributions. Take David Grainger, senior vice president for customer services in the company's U.S. customer operations group. His organization includes 18,000 field-service people, and he's quick to point out that "there's a lot

of technology behind them."

For starters, there is the system that backs up phone-support personnel. In the past, said Grainger, customers calling in reached an operator who would note the problem they were having and have a service engineer call back, typically 10 minutes later. Now the people taking calls are prompted at their terminals by an interactive, step-by-step troubleshooting routine automatically tailored to the customer's equipment and problem. "That eliminates a lot of on-site calls," said Grainger. "And studies have told us that the vast majority of customers would rather have these problems solved over the phone than have an on-site call."

Although on-site visits cannot be completely avoided, Xerox is attempting to cut down on the number of emergency calls it must make to customer sites by scheduling more maintenance calls. To prevent sudden equipment failure requiring emergency visits, Xerox's higher-end copiers now have an artificial-intelligence-backed chip that monitors operating conditions such as the frequency of paper jams or bad copies. If the problem occurs with more than a predetermined frequency, the machine alerts a service center via a phone line. An operator at the center then sends a message to the handheld computer of a field-service engineer, who can call to schedule a maintenance visit at the customer's convenience. To further speed its response to impending problems, the company is experimenting with removing the human operator from the loop and having the system itself contact engineers and apprise them of the situation via digitized voice.

While Grainger is gung-ho about the company's use of IT, he says that the key to Xerox's top-rated customer service is the workgroup orientation of the field-service organization. "Customer-focus groups kept telling us how often they were disappointed in other companies' service when they were assigned a sin-



PHOTOS COURTESY OF XEROX CORP.

gle service engineer," Grainger said. When a customer is served by only one engineer and that engineer gets swamped with calls, goes on vacation or leaves the company, the customer must wait for repairs or deal with a new engineer unfamiliar with that company's needs. To avoid these problems, Xerox assigns teams of about eight engineers to particular customers. Everyone on the team is familiar with, and to, all of its customers.

One reason the workgroup con-

cumber themselves of the van-fuls of manuals on which they currently rely. The workstations can be attached by cable to some copiers, providing a comprehensive diagnostic routine that can slash the time it takes an engineer to identify a problem.

The radio system enables constant voice communication among all members of a workgroup. Grainger said that in all likelihood, it will eventually include a patch into the portable workstations so that

customers to claim they're satisfied," said Grainger. "But I've got some groups that have achieved 100 percent satisfaction with their customers." After listening to these groups discuss their techniques, Myerscough realized they all had one ingredient in common: They negotiated the criteria for satisfaction ahead of time with their customers and tailored their service accordingly. "It turns out that a lot of customers don't really care how quickly a service engineer shows up," he offered as an example. "What matters to them is knowing as soon as possible *when* the engineer will show up." Some might want a two-hour service response on Friday afternoons when reports are due and in exchange be willing to put up with eight-hour responses on Mondays.

To allow all workgroups to tailor their service commitments to individual customers, Myerscough is flattening his organization, placing more authority in the hands of the 70 U.S. districts and less with headquarters. Districts will develop their own business plans and operate as their own profit-and-loss centers. To facilitate these changes, IS is working with the customer operations group to develop district-level client/server systems that will enable each district to track information any way it chooses, while at the same time providing for consolidation of all the information in Rochester. What's more, the systems will be cross-functional, designed to seamlessly handle all aspects of customer management, from order-taking to service to billing. "We want to reduce the number of business processes we employ from 62 to 15," said Myerscough. "Our information systems will be critical to that effort."

As for Wallington, she remains perfectly content to let other managers sing the praises of IT. It's only right, she pointed out. "They're my customers, and I want them to be satisfied." □

David H. Freedman is a freelance writer based in Brookline, Mass.

"A lot of customers don't really care how quickly a service engineer shows up. What matters to them is knowing as soon as possible *when* the engineer will show up."

-David Myerscough



cept is so successful is that the teams are backed up by two information systems, Grainger said. The first allows anyone in the group to enter and retrieve customer information, which ranges from detailed repair records to directions to the customer site. "The system lets the group pool its expertise and back each other up," Grainger explained. The system also feeds into accounting and administrative databases, thereby speeding and improving the accuracy of billing and other functions.

The second system is a database that tracks hardware and software problems in Xerox equipment worldwide. Workgroups can check the database for tips on dealing with odd bugs that crop up, and product-design groups can engineer permanent fixes in current and future products.

Grainger also touts a system of portable workstations, still in the pilot stage, and a radio communications system. The workstation system will provide engineers with easy access to an extensive repair database, enabling them to disen-

workgroup members can swap diagnostic, administrative and other information in seconds. (Xerox salespeople also carry laptops, enabling them to provide complex price quotes and write contracts on the spot.)

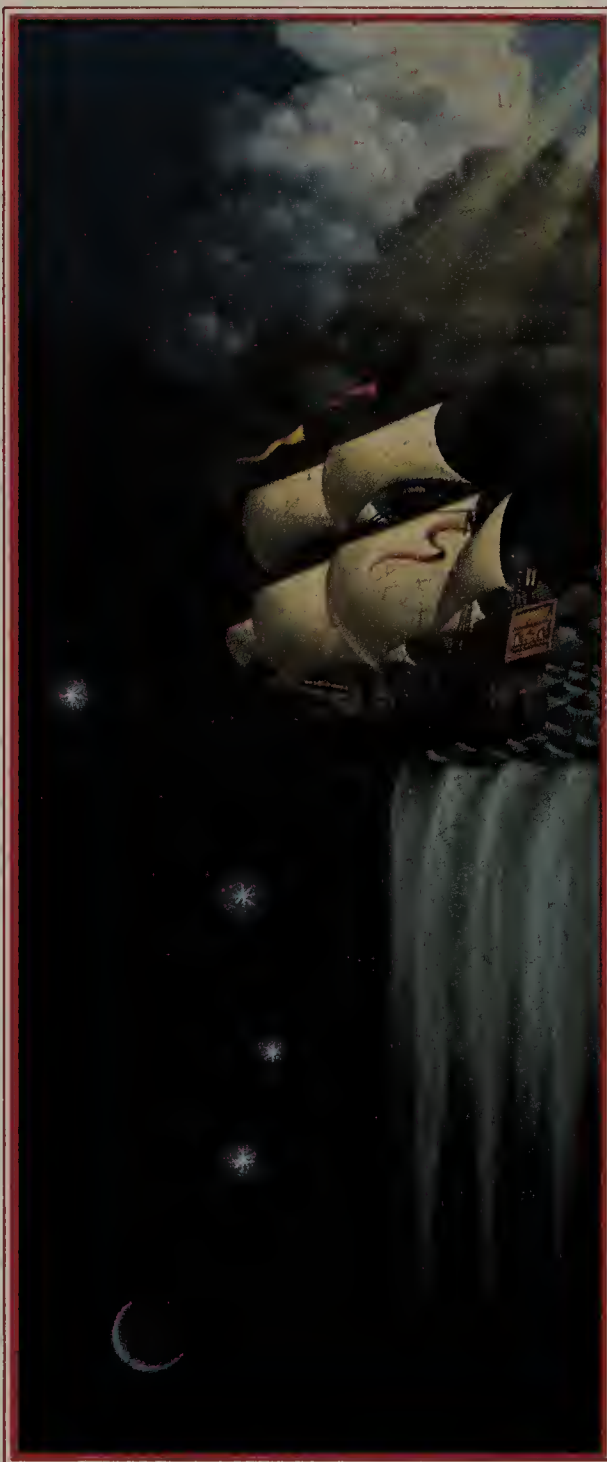
When Xerox started conducting surveys in the early 1980s, about 80 percent of customers rated themselves satisfied; now almost 93 percent say they are satisfied. "I'm committed to raising [the level of satisfaction] by about 1.5 percent a year," said David Myerscough, senior vice president of Xerox and president of the U.S. customer operations group. "But the closer you get to 100 percent, the harder it gets." Improving products helps, he noted, but it can't be the key, because product edges evaporate fast in high-technology industries. Thus the route to ever-higher customer-satisfaction ratings lies with providing better service.

Can Xerox achieve 100 percent? Yes and no. "If you analyze the situation, it's easy to prove that you'll never get every one of our 1 million

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The only way for companies to lock out competitors and lock up the customers is to make the conditions of confinement irresistibly advantageous **BY MICKEY WILLIAMSON**

Supplying a variety of goods from cars to chemicals to crushed rock, CIO-100 winners in the business-products sector increasingly find themselves unable to compete on the basis of price and quality alone. With a nod to his company's competitors, Phil Rathburn, director of customer service at **Dow Chemical** in Midland, Mich., said, "We all are producing high-quality chemicals and plastics, we all are essentially selling at competitive price levels, and we all offer similar kinds of attributes." How, then, can a company inspire loyalty among its customers?

The answer is service. "All cars are extremely well-made today, so the area of service becomes the distinguishing factor," said Frank Kery, manager of the customer-support

center for **Ford Motor's** North American Automotive Operations in Dearborn, Mich.

"The key is [getting] closer to our customers and [making] it easier for them to do business with us," said Harvey Shrednick, senior vice president of information systems at **Corning** in Corning, N.Y. Borrowing a phrase from Tom Peters, management consultant and author of the new book *Liberation Management*, Shrednick preaches the notion of "customer delight" as the key strategic weapon in the battle for market share. "Delighting the customer is what it's all about. The people who delight the customer will get the edge," he said.

Whether the company sells computer software, hospital supplies or electrical connectors, warm fuzzies are part of the product mix these days. Shrednick encourages Corning's sales representatives to make

"pen pals" of the purchasing agents they deal with, using a common carrier service such as MCI Mail to discuss golf scores, vacations and, not quite incidentally, the availability of Corning's new catalog. "The key to us is using technology to build relationships," he explained.

Sometimes the competitive edge comes from showing concern for the customer's bottom line. **Granite Rock**, in one of its frequent customer surveys, uncovered dissatisfaction among truckers who found themselves spending half an hour just picking up rock at the 93-year-old company's Watsonville, Calif., quarry. "With trucking costs at around \$60 an hour, that's a lot of profit that truckers were leaving inside the quarry gates," observed Marketing Services Manager Greg Diehl. Granite Rock's solution was a type of ATM system dubbed GraniteXpress that dispenses crushed rock, prepares an invoice and sends drivers on their way in less than 10 minutes.

"One-stop shopping" is the priority for John Kegel, vice president of corporate logistics at **AMP**, a manufacturer of electrical connectors in Harrisburg, Pa. "Regardless of what the customer wants to talk about, he can come to one place. The person who takes the call will have all the automated tools and all the requisite education to handle the customer, including pricing and delivery information, product information, return-materials authorization and a multitude of things like that," Kegel said.

McKesson, a San Francisco-based health-care products distributor, has equipped nearly all of the hospitals and pharmacies on its customer list with electronic ordering devices, according to John Fitzgerald, vice president of information services. Some use handheld devices that look like a calculator to upload their orders, but about 40 percent use McKesson-supplied software on their own PCs to log onto the supplier's computer for an interactive ordering session. The PC-based system tells the customer whether products are available for overnight delivery—McKesson's normal delivery time, another edge in an industry where the norm is to carry little or no inventory—and suggests

SNAPSHOT: MICROSOFT CORP.

EXPLOITING EVERY INTERFACE

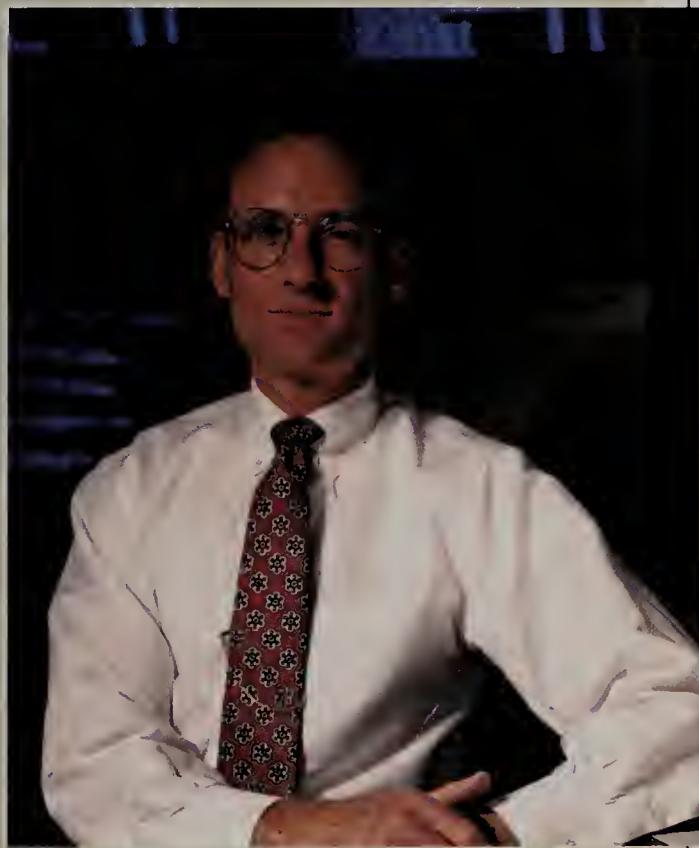
Each business day, close to 50,000 computer users call Microsoft looking for help with one of the company's nearly 150 software products. Given such traffic, Microsoft's Product Support Services group faces the heaviest demand in the industry. Voice calls alone top 20,000 daily in the United States; some 15,000 more go to Microsoft telephone centers in a dozen other countries worldwide. The remaining calls are to electronic bulletin boards and download and fax-back services. If a method exists to provide callers with information about Microsoft products, chances are the company uses it.

The 1,800 technicians who support Microsoft's customers have access to an array of technologies: a high-bandwidth voice and data network linking technical-support sites worldwide; automatic call distribution; interactive voice response; videoconferencing; client/server networking; and PSS Workbench, software that manages information about customers and their problems, and also has answers to every question asked about a Microsoft product.

Luckily for Patty Stonesifer, vice president of product-support services, Microsoft considers customer service the factor most likely to determine purchase and upgrade decisions. For this reason, the company has made technical support a strategic initiative for the 1990s. Putting its money where its corporate mouth is, Microsoft invests about 9 percent of revenue in this area.

Like most companies intent on pleasing customers, Microsoft polls users—not just its own—constantly. Among the findings: Customers value most highly responses that are accurate, prompt and attentive to their individual needs. An outside research firm surveys a random sampling of 1,500 Microsoft callers each month, asking questions about the help they received and the attitude of whomever provided it.

Statistical analysis plays a major role in Stonesifer's operation. The link between product developers and the support organization is so strong that product managers provide technical-support staff



EVANS: IS creates an infrastructure for customer contact.

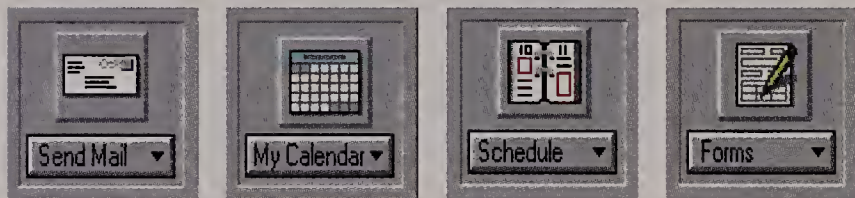
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with sales forecasts for six-month periods so that tech support can plan ahead. These projections are plugged into computer models that consider historic patterns of call volumes, the number of calls per unit of software sold and the average length of calls. The result is a projection of the extent, duration and cost of technical support for each new product release. Models also suggest the level of staffing needed to deliver support.

Plans for the future include caller-ID-displayed telephone numbers tied into the customer database to provide technicians with information about customers' products, configurations and the problems they have called about in the past. Once ISDN is available nationally, technicians will be able to diagnose software problems directly, said Neil Evans, CIO and head of the Information Technology Group.

The power behind Microsoft's excellence in customer service is the extent to which product developers, the support organization and the information technology group interact. One IS director is assigned to product-support services and functions as the account manager. "He sits in on all of their meetings and knows their business, so we can factor their plans into the IT plan," Evans said.

—M. Williamson

alternatives for those that aren't.

Like McKesson, companies that want to stand out from the pack offer extraordinary service that makes it hard for customers to look elsewhere. Ford's North American Automotive Operation practically takes service technicians by the hand and leads them through the process of troubleshooting car problems. Ford's Service Bay Diagnostic System, currently installed in 3,500 of the automaker's 5,200 dealerships, establishes a telephone link between the vehicle being serviced and the Dearborn facility's networked Intel 286- and 486-based PCs, which run 35 diagnostic tests and pinpoint the source of trouble. This capability greatly accelerates diagnosis and eliminates the trial-and-error techniques often required to solve some of the peskier problems encountered in today's automobiles.

"We don't make any money on the Service Bay Diagnostic System," Kery said. "What we get out of it is purchase loyalty." Besides, he added, the system makes dealers happy by cutting down on frustration and consequent employee turnover among auto mechanics.

IBM's Rochester, Minn., facility, home of the AS/400 midrange computer line, takes diagnostics a step further, nearly eliminating the need for field-service technicians. Nearly all problems can be solved remotely, with the intervention of IBM's telephone help desk. Every computer is now shipped with what Jim Harens, director of development technologies, calls electronic customer support, or ECS: an internal modem and software system that allows customers to dial in and describe their problems. Technicians in Rochester can then take control of the problem computer to run diagnostics, checking the computer's symptoms against a knowledge base that includes software fixes that can be downloaded and installed in the customer's machine remotely.

Telephone contact isn't always so satisfying. When a customer calls to place an order or get help with a product, the worst response is no response—a busy signal or a phone that rings with no one to answer. At

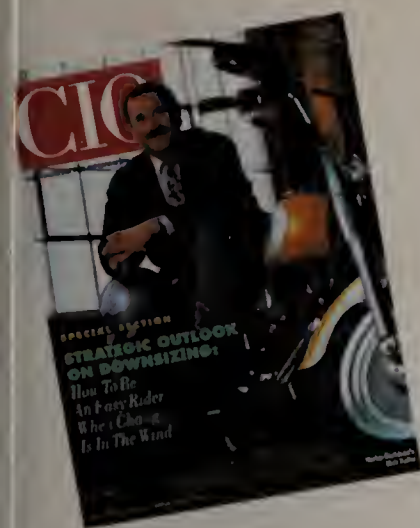
manufacturer AMP, the goal is to answer the phone on the first ring, said Keith Drysdale, vice president of global quality. "That's important because a lot of our products can be bought in a lot of places," he said.

Before AMP installed a telephone communication-management system, "about 8 percent of our customers got so fed up listening to canned music on hold that they hung up," Drysdale said. That number is now down to less than 1 percent.

If time spent on hold is inevitable, then disc jockeys—renamed "hold jockeys" by the companies that employ them—can make the wait less objectionable, two leading software companies have discovered. Callers to **Microsoft** (see related story) and **WordPerfect** listen to mainstream music—less bland than elevator music—and what sounds like a radio announcer telling them how long they are likely to wait, much like a rush-hour traffic report. When calls pile up on one line, WordPerfect's hold jockey can move them to another with the click of a mouse, according to Mike Daniels, director of MIS.

Providing superior customer service is a case where virtue is more than its own reward. Careful attention to customer feedback can point the way to new sources of revenue. "[Our] new product directions are being driven as tightly as [possible] by what the customers tell us they need," said Keith Payden, vice president and CIO at **Tennant**, a manufacturer of floor-maintenance equipment in Minneapolis. For example, he said, "we heard from our customers that they needed better serviceability on their machines. That gave rise to a service organization that is now bigger than our sales force."

Corning has found through surveys that "people will pay a premium in price for excellent service," Shrednick said. Granite Rock includes in its surveys questions that probe for the factors most important to customers in choosing a supplier, according to Diehl. "Salespeople think it's price, because that's what customers pound on them about," he said. "In fact, in no survey that we have ever conducted have we



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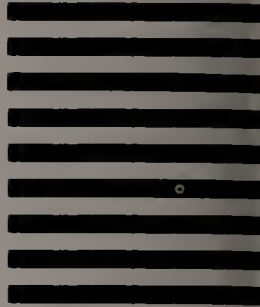
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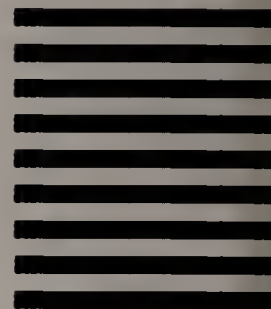
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THE TOP BUSINESS-PRODUCTS COMPANIES

COMPANY/LOCATION	ANNUAL REVENUES	TOP IS EXECUTIVE	CEO	TYPE OF BUSINESS
3M Co. St. Paul, Minn.	\$13.9 B	David Drew VP/IT	LD. DeSimone Chmn. & CEO	Adhesives, abrasives, industrial & con- sumer products
AMP Inc. Harrisburg, Pa.	\$3.3 B	Ronald Vance Dir./Sys. Svcs.	William J. Hudson Pres. & CEO	Electrical connectors
AT&T New York	\$65 B	William F. Osl Jr. VP/Info. Mgmt. Svcs.	Robert E. Allen Chmn. & CEO	Communications services, equipment & computer systems
Caterpillar Inc. Peoria, Ill.	\$10.2 B	Robert P. Hinds Dir./Corp. IS	Donald V. Fites Chmn. & CEO	Construction & earth-moving equip- ment, diesel engines, gas turbines
Corning Inc. Corning, N.Y.	\$3.7 B	Harvey Shrednick Sr. VP/IS	James Houghton Chmn. & CEO	Glass, ceramics & special materials
Dell Computer Corp. Austin, Texas	\$2.014 B	Tom Thomas CIO	Michael Dell Chmn. & CEO	Personal computers
Dow Chemical Co. Midland, Mich.	\$18.97 B	Donald Pirkle VP/IS	Frank Popoff Chmn. & CEO	Chemicals & plastics
Ford Motor Co. (North America) Dearborn, Mich.	\$59.1 B	Si Gilman Exec. Dir./IS for Ford Motor Co.	Edward E. Hagenlocker Exec. VP, No. Amer.	Automobile manu- facturing, parts & service
GE Plastics Americas Pittsfield, Mass.	N/A	Richard A. Knight Jr. Mgr./Info. Manage- ment Operation- Americas	Nigel D.T. Andrews VP & Gen. Mgr.	Engineering plastics resin
Granite Rock Co. Watsonville, Calif.	N/A	Rita Alves VP & CFO	Bruce Woolpert CEO	Construction-materi- als supplier
IBM Corp., Rochester, Minn. Rochester, Minn	\$4.5 B	Susan Adams Mgr./IS	Bob Unterberger Chmn. & CEO	Application business systems & worldwide manufacturing
McKesson Corp. San Francisco	\$11.6 B	John Fitzgerald VP/IS	Alan Seelenfreund Chmn. & CEO	Health-care products distributor
Microsoft Corp. Redmond, Wash.	\$2.28 B	Neil Evans CIO	William H. Gates III Chmn. & CEO	Computer software
Milliken & Co. Spartanburg, S.C.	N/A	James W. McCabe Dir./MIS	Roger Milliken Chmn. & CEO	Textiles
Motorola Inc. Schaumburg, Ill.	\$13.3 B	N/A	George Fisher Chmn. & CEO	Wireless communi- cations & electronic equipment
Otis Elevator Co. Farmington, Conn.	\$4.5 B	Marc E. Robling Dir. No. Amer. Op- erations/IS	Jean Pierre van Rooy President	Elevator/escalator manufacturing & service
Procter & Gamble Co. Cincinnati	\$29 B	Frank Caccamo VP/Mgmt. Syst.	Edwin Artzt Chmn. & CEO	Household & person- al-care products
Staples Inc. Framingham, Mass.	\$3.0 B	Robert S. Fried Chief Tech. Officer	Tom Stomberg Chmn. & CEO	Retailer of discount- ed office products & furniture
Tennant Co. Minneapolis	\$200 M	Keith Payden VP & CIO	Roger Hale CEO	Floor-maintenance equipment and floor-treating mate- rials
WordPerfect Corp. Orem, Utah	N/A	Mike Daniels Dir./MIS	Alan Ashton President	Computer software
Xerox Corp. Stamford, Conn.	\$14.7 B	Patricia Wallington CIO	Paul Allaire Chmn. & CEO	Document processing

seen price in the top three in terms of what's most important to a customer."

These days, polling has become as much a way of life for customer-service-oriented companies as it is for politicians. Periodically, AMP surveys 250 potential buyers of connectors, half of whom are already AMP customers. "The survey lets us find out what the customers think is important, how we're doing on about 30 items and how each of our competitors is doing on the same 30," Drysdale said. "From that, we can prioritize what we should be working on."

IBM brings customers in for face-to-face roundtable discussions. When quality or service issues arise, Corning holds videoconferences with customers to discuss design and delivery questions. "It's a powerful way to bring people together without traveling," Shrednick said. "You can always get somebody for an hour to sit in front of videoconference equipment and resolve your issues face-to-face."

Companies these days want more than their customers' money; they want their loyalty, too. And they are willing to spend money to get it. McKesson installed a satellite telephone system to facilitate prompt and reliable delivery. This paid off when fire struck Illinois Bell's Hinsdale central switching office in 1988. Phone systems at many of McKesson's competitors were disabled for as long as 10 days, during which they were essentially out of business. But McKesson carried on as usual and picked up orders from customers it might never have attracted any other way. Of the new business it gained, \$11 million stayed with the company after the competitors' phones were restored. CIO Fitzgerald recounts that McKesson President and CEO Alan Seelenfreund later told him that "being able to keep that distribution center in business paid for the system." [CIO]

Mickey Williamson is a technical journalist in Warwick, Mass., who specializes in emerging technologies. She is the founder of the Qwerty Group.



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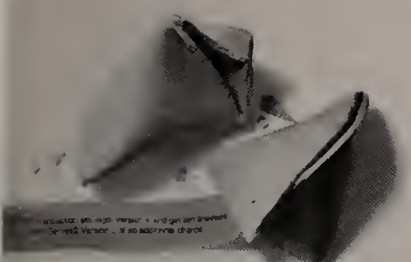
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No organization can be all things to all people. Information technology helps companies tailor innovative services to business customers and deliver them without a hitch. **BY ALLAN E. ALTER**

Providing outstanding service is the secret to winning customer loyalty, according to business-product manufacturers. But how do you win loyalty if business services are your product?

The answer, we discovered as we interviewed our CIO-100 winners, is not to provide the *most* customer service, but to provide the *most-appropriate* customer service. You don't have to promise the sun, moon and stars when you can reliably deliver the particular services that really count with your customers.

Compare **Southwest Airlines** and **Sin-**

gapore Airlines. Both are profitable and primarily serve business travelers. Both have outstanding reputations for customer service and understand what matters to their customers. Beyond that, they have nothing in common.

Singapore's customers must endure a lengthy trans-Pacific flight. So Singapore Airlines pampers business travelers with creature comforts such as hydraulic, fully reclining seats and provides attentive personal service, thanks to one of the highest flight-attendant-to-passenger ratios in the industry. If business cannot wait, passengers can call and send faxes anywhere in the world through its satellite telecommunications network. (The airline claims to be the

first to introduce these services.)

Southwest's customers fly short distances; the airline regards cars and buses as competitors, said Robert W. Rapp Jr., vice president of systems. So this carrier offers frequent flights between cities, the best on-time and baggage-handling record in the industry, rock-bottom prices and a good ol' time. Southwest's flight attendants have been known to sing safety instructions to the tune of the *Beverly Hillbillies* theme song.

However, there is a lot you won't find on a Southwest flight. The airline doesn't offer meals, reserved seating or baggage transfers to other airlines. Southwest also lacks the information systems needed to provide these services. But Rapp argues that those services cost money, add complexity and don't matter much to business travelers who want the first cheap flight from Houston to Lubbock. "What we don't do with IT is as important as what we do," he said.

"Know Thy Customer" is the bedrock of customer service at many companies. Each **Four Seasons** hotel keeps a database of individual guests and one of business clients who book functions or have corporate accounts with the chain. The databases enable the hotelier to track, anticipate and act on client characteristics and preferences (for example, single women are given rooms near elevators, where the heavy traffic flow lowers the risk of attack) and provide extras such as Guest Reserve, a concierge service for companies that book more than 45 nights a year with the chain.

Sometimes, the most important part of Know Thy Customer is Know Thy Customer's Equipment. **ServiceMaster** has made this principle a centerpiece of its IT strategy (see related story). So has **Otis Elevator**, which does a sizable business providing maintenance for other manufacturers' elevators as well as its own. Its long-standing application OtisLine enables an elevator to notify Otis's mainframes when sensors indicate it is performing below preset standards. Field mechanics equipped with portable terminals can communicate from the customer site to the OtisLine mainframe as well. Otis analyzes the data it collects on elevator prob-

SNAPSHOT: THE SERVICEMASTER CO.

BEYOND THE PAIL

Dial 1-800-WE SERVE and you'll reach The ServiceMaster Co. of Downers Grove, Ill. ServiceMaster has long been lionized for its ability to train, retain and motivate "people who are usually looked down upon, people who clean washrooms," said Douglas Nies, vice president of information services.

A sense of religious purpose and personal dignity motivates ServiceMaster's "service partners" as they work in hospitals, factories and educational institutions, providing housekeeping, food, and linen and laundry services, and maintaining plant and clinical equipment. But information systems help local managers guide service partners in their chores and keep clients satisfied.

Nies's top priorities are "differentiating an intangible service through information" and "providing information to the front-line managers so they can make better decisions." A flat-file mainframe database at the company's customer-service center, PCs at the local managers' offices, and electronic- and voice-mail systems provide the means.

"We have the largest database on corrective and preventive maintenance for plant and clinical equipment in the world," said Nies.

"We're known for having more information than the manufacturers."

Statistics and other information recorded by local managers on their PCs are automatically downloaded to the mainframe at night. With this data, the mainframe tracks inventory on all equipment the company maintains at customer sites, generates a preventive maintenance schedule and work orders, and tracks equipment that is failing and needs to be replaced.

ServiceMaster also uses this database as a knowledge base. For instance, the system not only keeps a record on each Acme Model 100 institutional washing machine it maintains throughout the country, it also combines these records into a unified repair-and-maintenance history for all Acme Model 100s.

This gives the local manager "a reservoir of knowledge and infor-



NIES: *We have more information than the manufacturers.*

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mation based on years of experience," Nies said. When a maintenance schedule is printed, it takes into account how extended usage will affect maintenance requirements. If a client's machine is having problems, the local manager responsible for the site can send an E-mail note to ServiceMaster's customer-service center. Someone there will check the database and respond with the solutions that worked best for other machines. That typically takes just 15 minutes.

ServiceMaster also supplies data on performance standards: for example, how long it ought to take to clean a 1,500-square-foot lobby. It keeps tabs on local building codes, regulations and requirements throughout the country. And it tracks the training received by each service partner.

As a result, a local manager can serve as both a consultant and a volume-discount buying club.

Managers can advise clients how to extend the life of their equipment and how regulations can affect new construction or equipment. (They also will provide this advisory service to potential customers as a first step toward winning their business.) At replacement time, ServiceMaster can inform clients which models have the best maintenance records, sell them the equipment at a discount and finance it, too. —A. Alter

lems and failures to improve the quality of its maintenance service and its own elevators, according to Marc E. Robling, director of North American Operations information systems.

Offering the most-appropriate customer service includes knowing when to deliver services by machine and when to deliver them in person. At Four Seasons, it is corporate policy never to let computers upstage the staff. There is no TV-screen checkout system at a Four Seasons hotel, and guests are never assigned ID numbers or given computer-controlled, plastic door keys. "We avoid giving guests the feeling they are not being taken care of by a person," said Michael S. Hwu, manager of systems.

Customer-service representatives at **CSX Transportation** work with an automatic number-identification system that provides a screenful of data about the client who is calling. But CSX Technology President George F. Sekely points out that the calls don't go to just any representative; they get routed to someone familiar with the account.

Yet when speed and convenience are more important than the personal touch, it makes sense to fully automate a customer-service function. **Scandinavian Airlines** has set up multilingual, automated baggage check-in machines in its business-class check-in areas at many European airports. Travelers have the option of checking their own bags with the assistance of a touch-screen monitor; the machine then provides a map showing them how to get to the gate. "The average check-in today [at a typical check-in counter] is about 1.5 minutes. This brings it down to 25 to 30 seconds," said Bjorn Böldt-Christmas, senior vice president in charge of information systems.

If there is one aspect of customer service that consistently counts, it is the need, in Sekely's words, to "live up to your customer commitments." Over and over, our winners stressed the importance of efficient, reliable business operations, of executing the fundamentals consistently well.

William F. Osl Jr., **AT&T's** vice pres-

ident of information management services, offered as an example the digital switches and network-management capabilities that enable it to guarantee its 800 service. Other CIOs described the kind of logistical and operational-support systems that, well, make the trains run on time. For instance, CSX depends on railyard-management and car-switching systems, and Southwest employs

"We avoid giving guests the feeling they are not being taken care of by a person."

—Michael S. Hwu



such airline-industry equivalents as schedule-planning systems for pilots and aircraft-tracking systems. Elevators don't need schedule planning, but field mechanics making service calls do. So Otis created an automated mechanics' route schedule.

The search for more efficient and reliable business processes can lead to major advances in customer service. **Federal Express's** Dennis H. Jones, a CIO who considers his top priority to be spotting opportunities to simultaneously lower costs and improve quality, provided two examples: a new aircraft-logistics system and Federal Express's Powership service. Customers sending five or more packages a day can obtain, free of charge, a computer system (consisting of a PC, printer and software) that enables them to prepare a package without paperwork and track it themselves. Federal Express implemented this system because it saves money all around, said Jones. "We found that pickup time can be the highest cost in the transaction for us and for our customers. If we can make it faster and simpler to prepare a package for shipping, the transaction costs can be reduced." Today, more than half of Federal Express

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making money? One that lets you pick up any line, even your bottom line?

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packages are sent via Powership.

As Federal Express taught the business world, no matter how reliable your service, customers often want to check up on you. Systems that give customers the ability to check the status of their orders, reservations or deliveries have become a critical customer-service of-

fering. Along with CSX, **The Wall Street Journal** and AT&T have invested in automatic telephone-number recognition systems. Otis Elevator is beginning to open up its database so that clients can dial in and check the status of a work order, much as Powership allows Federal Express customers to check the status of a pack-

age. Perhaps it's a sign of our times: If you really want the world to beat a path to your door, don't just build a better mousetrap. Build a better mouse-tracking system, too.

Underneath all the applications, all the data, all the control systems, there has to be a good answer to an important question: How does the IS function become focused on and sensitized to the most-critical elements of customer service?

According to AT&T's Osl, decentralization is the answer. AT&T has divided itself into about 20 "market-focused profit centers" and dispersed 7,000 central IS staff members to AT&T business units. This way, the "people who develop IT are close to the marketplace together with the people running the business, so IS can provide the competitive advantage and customer service we are looking for," said Osl.

Some CIOs use return-on-investment projections to guide their investments in technology to improve customer service. CSX requires a minimum ROI of 15 percent before investing in any new customer-service application; Southwest Airlines requires payback in 24 months or less. Federal Express's Jones would not release figures but said, "We do have specific, well-planned and carefully managed rates of return for all of our projects. I want to reinforce how strongly we project rates of return and manage to those."

Measurements that reflect customer concerns are basic to achieving outstanding customer service. Douglas Nies, ServiceMaster's vice president of information services, stressed the importance of involving customers when selecting customer-service measurements. Several companies that measure service quality on a daily basis warned against using averages over time instead of actual numbers. "We want to be sure we can handle the peak [days]," said Charles F. Russell, **The Wall Street Journal's** vice president of technology. "It's not good enough to say our yearly average is OK when there are some days nobody can get through." The trick, said Jones, is, "to measure quality by [its impact on] the customer." ☐

THE TOP BUSINESS-SERVICES COMPANIES

COMPANY/LOCATION	ANNUAL REVENUES	TOP IS EXECUTIVE	CEO	TYPE OF BUSINESS
Alaska Airlines Inc. Seattle	\$1 B	Leif B. Haslund Asst. VP/ Admin. Svcs.	Raymond J. Vecchi Chmn., Pres. & CEO	Public air transportation
American Express Co. New York.	\$26.9 B	B. Garland Cupp Exec. VP & CIO/American Express Travel-Related Svcs.	Harvey Golub Pres. & CEO	Travel & financial services
AT&T New York.	\$65 B	William F. Osl Jr. VP/Info. Mgmt. Svcs.	Robert E. Allen Chmn. & CEO	Communications services, equipment & computer systems
CSX Transportation Inc. Jacksonville, Fla.	\$4.4 B	George F. Sekely Pres./CSX Technology	Alvin R. Carpenter Pres. & CEO	Transportation
Federal Express Corp. Memphis, Tenn.	\$7.55 B	Dennis H. Jones Sr. VP & CIO	Frederick W. Smith Chmn., Pres. & CEO	Express-package delivery
Four Seasons Hotels Ltd. Toronto	\$878.9 M (Canadian)	Michael S. Hwu Mgr./Systems	Isadore Sharp Chmn. & Pres.	Luxury hotels
Marriott Hotels, Resorts & Suites Washington	\$4 B	Charles L'Esperance Sr. VP/IS	William R. Tiefel Pres.	Lodging & resorts
Otis Elevator Co. Farmington, Conn.	\$4.5 B	Marc E. Robling Dir./No. American Ops. IS	Jean Pierre van Rooy Pres.	Elevator/escalator manufacturing & service
Ritz-Carlton Hotel Co., The Atlanta	\$650 M	Bruce Speckhals VP/MIS	Horst Schulze Pres. & COO	Luxury-hotel management
Scandinavian Airlines System (SAS) Stockholm, Sweden	\$4.6 M	Bjorn Böldt-Christmas Sr. VP	Jan Carlzon Pres. & CEO	Airline transportation
ServiceMaster Co., The Downers Grove, Ill.	\$2.488 B	Douglas Nies VP/IS	C. William Pollard Chmn.	Management & consumer services
Singapore Airlines Singapore	N/A	Kai Mun Cheong Dir./ Mgmt. Svcs. Div.	Dr. Choong Kong Cheong Managing Dir.	Airline
Southwest Airlines Dallas	\$1.69 B	Robert W. Rapp Jr. VP/Sys.	Herbert D. Kelleher Chmn., Pres. & CEO	Commercial airline
Union Pacific Railroad Omaha, Neb.	\$5 B	Joyce M. Wrenn VP/IT & CIO	Dick Davidson Chmn.	Transportation
United Parcel Service Atlanta	\$16.5 B	Frank Erbrick Sr. VP	Kent C. Nelson Chmn. & CEO	Worldwide package-distribution company
Wall Street Journal, The New York	N/A	Charles F. Russell VP/Tech.	Peter Kann Publisher	Daily newspaper
Xerox Corp. Stamford, Conn.	\$14.7 B	Patricia Wallington CIO	Paul Allaire Chmn. & CEO	Document processing

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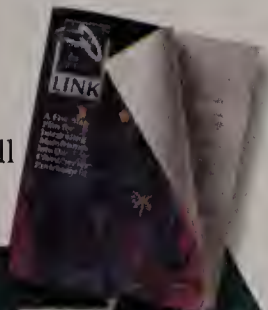
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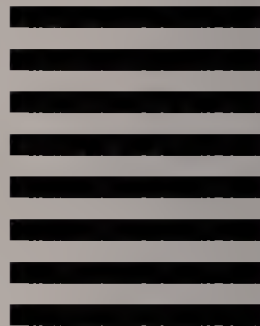
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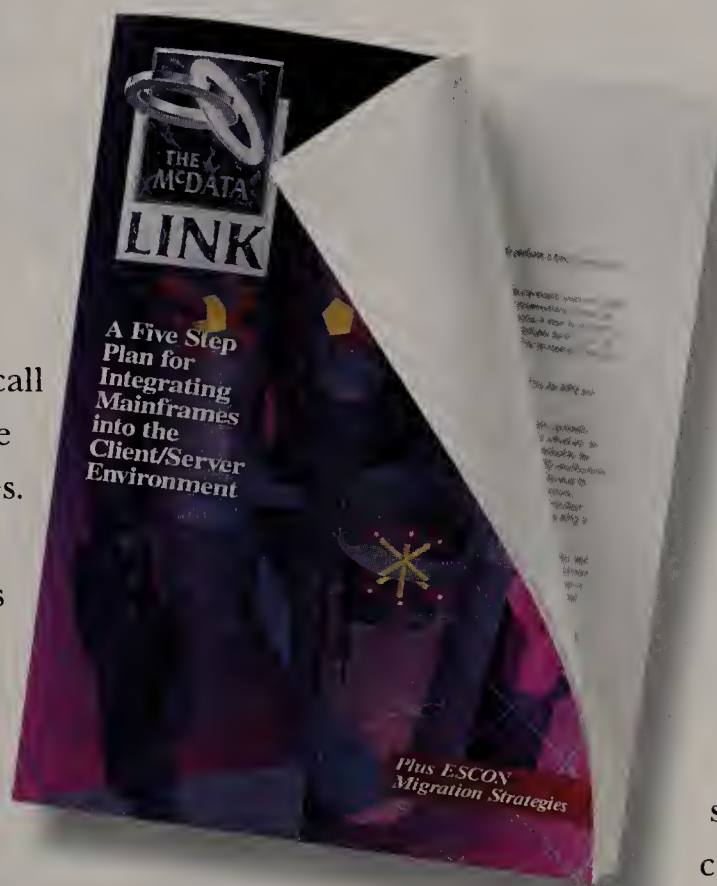
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Nordstrom Inc.
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Rubbermaid Inc.
Saturn Corp.
Stew Leonard's Dairy Store
Wal-Mart Stores Inc.

The CIO-100 winners treat customers like kings. Join us as we explore some of the ways consumer-products companies pamper their patrons. **BY RICHARD PASTORE**

The best way to realize the value of consumer service is to live it (or suffer it, as the case may be). If we gave you, our reader, a briefcase full of money and sent you out to patronize the winners of the CIO-100 in a sort of personal *Consumer Reports*, you'd find little to complain about. Our 21 consumer-products companies treat customers like royalty, an antiquated concept that's been dusted off and re-dressed as a differentiator with help from IT. But don't take our word for it. Experience a sampling of our winners' service and see if you don't wind up feeling thoroughly regal.

First you'll need a great set of wheels to get around with. **Toyota's Lexus, Nissan's Infiniti** and **General Motors' Saturn** treat the pun "customer driven" quite seriously. All offer such

service extras as toll-free "customer satisfaction" hot lines and dealership network systems that keep tabs on your purchase, repair history and degree of contentment. Integrated via satellite links with host systems and other dealerships, these systems help Saturn and Infiniti achieve repair-parts in-stock rates of better than 90 percent (industry averages are 65 to 75 percent). Saturn dealers use their network to find cars already in production or parked at other dealer lots that best suit a customer's model specification and delivery demands.

You favor the luxury Lexus? Your purchase generates a permanent customer file in Lexus's nationwide service database. This database will follow you wherever you go, so when your engine starts ping-pong somewhere along Interstate 95 in Connecticut, the local Lexus shop will know your service history instantly,

even though you bought the car in Brooklyn. With this data, the mechanic can pinpoint and fix the problem faster, saving you time and money.

To achieve this level of customer service, dealerships must operate uniformly and quickly exchange data with headquarters, said Douglas Plescia, vice president of IS at Toyota Motor Sales USA. IBM AS/400 minicomputers at each dealership swap data via satellite with an IBM 3090 mainframe at Toyota USA headquarters.

Unfortunately, there's no Lexus dealership along this stretch of pavement. You pull into Goober's Garage, suspecting the guy's never seen a Lexus, let alone fixed one. No need to despair, though: Goober can phone the Lexus technical-service line and get an earful of specific repair pointers from a tech-support agent.

Now that your car is working, you can call on some of our other winners and put them through their paces. You pull into a **Wal-Mart** lot and park next to a **Harley-Davidson**. The Harley's owner is probably a fiercely loyal member of the 175,000-strong Harley Owners Group, or HOG. Surveys and warranty information provided by HOG members are part of a new customer database available to all users at the bikemaker's headquarters. The system distributes this data via an AS/400 token-ring network, providing managers with feedback on the bikes' strengths and weaknesses, according to Director of MIS Richard Kolbe.

At Wal-Mart, your mission is to pick up some adhesive tape, toothpaste and a box of tacks. You notice that the store layout looks a bit different from the one back home. A sign of inconsistent management? Not so, said Executive Vice President and CIO Bob Martin. Wal-Mart customizes store layouts and merchandise selection to best suit the demographics and buying habits of the locals. Client/server systems allow store managers to analyze and adjust for 2,500 buying-related traits, such as whether folks around here prefer backyard badminton or snaring striped bass off Greenwich Point.

You find the items you're looking for in stock, not surprisingly. Wal-Mart's automated-replenishment system includes a 1.3-terabyte relational

SNAPSHOT: LANDS' END

YOUR ONLINE PERSONAL SHOPPER

The holidays are fast approaching, and to avoid long check-out lines, you place a call to Lands' End, the sports- and casual-clothing mail-order firm. After a quick ring-and-a-half, Linda picks up and asks how she can help. You know your spouse wants a sweater. Unfortunately, Lands' End sells dozens of styles through its 30-odd catalogs.

While other firms might refer you back to the catalog and give you the bum's rush, Linda will spend as long as necessary with you. She'll discuss your spouse's color preferences, lifestyle, where he or she might want to wear the sweater—eventually recommending a couple of possibilities.

Grateful, you order one of each just to make sure. You're further relieved to learn that the sweaters are in stock, and Linda guarantees shipment within 24 hours.

You couldn't get this kind of service from big-volume retail stores or even from many of Lands' End's mail-order rivals. If you could peek behind the scenes at the \$700 million firm, you'd find that none of it would be possible without information technology.

Quick telephone pickup is ensured by a call-routing system. Linda's helpful suggestions are aided by a mainframe-based order-processing system that provides reps with a wealth of information on products and availability in subsecond response times. In-stock rates of 90 to 92 percent are achieved by accurate forecasting based on historical sales and sales trends recorded and identified by IT.

Should you decide to jot a note praising Linda's efforts, your comments will be electronically logged with the 10,000 others received and reported to all managers monthly. Customer comments and requests have moved managers to such actions as adding the Discover card to the list of accepted plastic.

Aligning IS with customer service is facilitated by the fact that the two departments work as equals, according to Director of Customer



GILLISPIE (left) and ROURKE: IS and customer service work as equals.

PHOTO BY DAVE SCHLABOWSKE

Service Mike Gillispie. "The partnership is much closer than you'll find in most other operations," Gillispie said. "It started out that way, and we have continued to foster it." For one thing, the two groups are deliberately located next to each other in the company's Dodgeville, Wis., headquarters. Communication takes place at the executive level, but even more so at the staff level, aided by liaisons like Customer Sales Supervisor Carol Skala.

"I communicate [to IS] any problems or special situations that come up or system enhancements we require as our needs grow," Skala said. Sales staff and their IS counterparts are now collaborating on a new help screen for the customer-ordering system, she said.

Other developments are IS-led, including the introduction of image processing to the ordering system. This will provide reps with fast visual references unavailable from bulky catalogs and screen text, said Daniel Rourke, vice president of information services. "We're also developing a corporatewide database to include all customers for the last five years," a much handier tool for target-marketing than current tape-based data. Unfortunately, there are no plans to simplify things by getting rid of some of those sweaters.

—R. Pastore

database tracking sales in more than 1,600 stores. If Wal-Mart didn't have such a capability, its more-sophisticated suppliers could take up the slack. For example **3M**, whose adhesive tape you just picked up, has systems that can automate inventory management and replenishment on behalf of its retailers. By collecting point-of-sale data from the stores, 3M will know what's selling and automatically generate replenishment shipments, said David Drew, vice president of IT. Consumers benefit because the merchandise is always in stock, retailers benefit by expending fewer resources to avoid losing a sale, and 3M benefits by binding its customer, the retailer, in a tighter relationship.

Procter & Gamble, the maker of the toothpaste you bought, also has a continuous-replenishment program based on EDI. This is part of P&G's primary IS focus—eliminating non-value-added costs from the supply chain linking manufacturer to store shelf. This in turn will increase consumer value, said Frank Caccamo, vice president of management systems. P&G's customer-services group has its own dedicated IS shop working toward this end.

Leaving Wal-Mart, you drive to a lawn and garden shop, one of 1,200 dealers of **John Deere Lawn & Grounds Care** machines. Before you go in, spread the tacks you bought on the parking-lot pavement. Now buy one of those shiny green ride-on mowing tractors, fire it up and drive it over the tacks. Use the nearby pay phone to call Deere's customer-service line and complain about this unfortunate "accident." Your complaint is entered into a computerized customer-inquiry system, the only one of its kind among outdoor power-equipment manufacturers, according to Gerald Schelfaut, the divi-

sion's IS manager. The LAN-based system logs your complaint, codes it by category and reports it to managers. Chances are, the unsuspecting dealer will get a call from Deere within two weeks telling him to clean up the parking lot. Before this system was implemented, that feedback could have taken six weeks to make the rounds.

You leave the tractor behind for a tire patch job and drive to the nearest

Frequent two-way satellite video broadcasts keep Home Depot staff up to date on the tool scene while hammering home corporate's customer commitment.



Home Depot, to play "stump the clerk." Don't bother with questions that would foil the typical cashiers at ordinary home-improvement retailers—frequent two-way satellite video broadcasts keep Home Depot staff up to date on the tool scene while hammering home corporate's customer commitment.

Instead, you're ready to knock 'em cold by asking for advice on remodeling your kitchen. Much to your amazement, the clerk directs you to a computer-aided-design station running kitchen- and bath-design help sessions. As a backup, you unleash the devastating "special-order request." But even this tedious process is slated for improvement, according to W. Andrew McKenna, senior vice president of information services. He's working on a system that will monitor special-order requests and help determine if an item should be added to permanent inventory. The retailer's preference for open, flexible, Unix-based systems makes it easier to add functions like this, McKenna said.

Before quitting Home Depot, purchase a **Black & Decker** wood lathe or some other exotic power tool you have no idea how to operate. When you get home, call B&D's customer-inquiry line. Your questions will trigger an artificial intelligence, image-based system that will draw a graphic of the lathe and feed the



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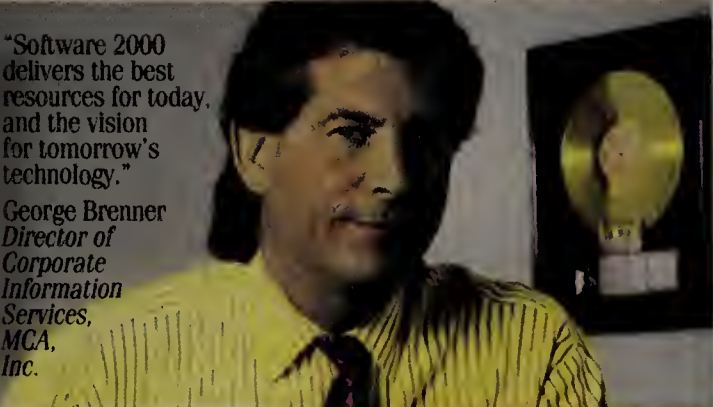
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3M Co. St. Paul, Minn.	\$13.9 B	David Drew VP/IT	L. D. DeSimone Chmn. & CEO	Adhesives, abrasives, industrial & con- sumer products
Black & Decker Corp., The Towson, Md.	\$5 B	Ken Homa VP/Group Logistics & Bus. Sys. Devel.	Nolan Archibald CEO & Chmn.	Professional & con- sumer power tools
Dell Computer Corp. Austin, Texas	\$2.014 B	Tom Thomas CIO	Michael Dell Chmn. & CEO	Personal computers
Frito-Lay Inc. Plano, Texas	\$3.5 B	Allen Dickason VP/MIS	Steve Reinemund Pres.	Snack foods
GE Appliances Louisville, Ky.	\$5.3 B	Geoffrey E. Relph Mgr./IT	J. Richard Stonesifer Pres. & CEO	Electric appliances
Gap Inc., The San Francisco	\$3 B	Mick Connors Sr. VP & CIO	Don Fisher Chmn. & CEO	Casual clothing
Harley-Davidson Inc. Milwaukee	\$1.1 B	Richard L. Kolbe Dir./MIS	Richard F. Teerlink Pres. & CEO	Motorcycles & RVs
Home Depot Inc., The Atlanta	\$7.1 B	W. Andrew McKenna Sr. VP/IS	Bernard Marcus Chmn. & CEO	Do-it-yourself home building supply re- tailer
Infiniti Division of Nissan Motor Corp. USA Carson, Calif.	N/A	Evan Wride Dir./IS for Nissan Motor Corp. USA	William R. Bruce VP & Gen. Mgr./In- finiti Division	Luxury cars
John Deere Co. Lawn & Grounds Care Div. Raleigh, N.C.	N/A	Gerald Schelfaut Mgr./IS for Lawn & Grounds Care Div.	Jeffrey T. Gredvig Gen. Mgr.	Lawn & grounds care equipment (home & commercial)
L.L. Bean Inc. Freeport, Maine	\$743 M	Horace Gower VP/IS	Leon A. Gorman Pres.	Catalog company for outdoor apparel & equipment
Lands' End Inc. Dodgeville, Wis.	\$700 M	Daniel Rourke VP/IS	William T. End Pres. & CEO	Direct marketer of clothing
Lexus, a Div. of Toyota Motor Sales USA Torrance, Calif.	\$14 B	Douglas Plescia VP/IS for Toyota Motor Sales	George Borst Group VP of Lexus	Passenger cars
Limited Inc., The Columbus, Ohio	\$6.9 B	N/A	Leslie H. Wexner Chmn. & CEO	Specialty retailer of men's & women's fashion apparel
Medco Containment Services Inc. Montvale, N.J.	\$1.34 B	Thomas P. Apker Sr. VP	Richard S. Braddock CEO	Prescription drugs, plastic products for medical use
Nordstrom Inc. Seattle	\$3.4 B	Charles T. Mitchell DP Mgr.	Bruce A. Nordstrom, John N. Nordstrom, James F. Nordstrom, John A. McMillan Co-Chairmen	Clothing, shoes & ac- cessories
Procter & Gamble Co. Cincinnati	\$29 B	Frank Caccamo VP/Mgmt. Sys.	Edwin Artzt Chmn. & CEO	Household & person- al-care products
Rubbermaid Inc. Wooster, Ohio	\$1.67 B	Otto Hammer Dir./IS	Wolfgang Schmitt Co-Chmn. & CEO	Rubber & plastic home, commercial & industrial products
Saturn Corp. Troy, Mich.	N/A	Wes Arrington EDS Divisional VP	Richard LeFauve Pres.	Automaker
Stew Leonard's Dairy Store Norwalk, Conn.	\$190 M	Stephen Guthman Exec. VP & CIO	Stew Leonard Sr. Chmn.	Grocery retailer
Wal-Mart Stores Inc. Bentonville, Ark.	\$55.5 B	Bob L. Martin Exec. VP & CIO	David D. Glass Pres. & CEO	Retailer

phone rep all the instructions he or she needs to get you up and lathing. Less than a year old, PLUS (Power Line Usage System) finds the right image and text by reading typed-in key words. The result is a more rapid, thorough and satisfying response to your questions.

You have time for one last, quick stop, so you pull into **Stew Leonard's Dairy Store**. Once a milk home-delivery service, Stew has earned kudos from quality guru Tom Peters and now holds customer-service "classes" for the likes of IBM. The company's two Connecticut stores raked in \$190 million last year, and the company holds the *Guinness Book of World Records* title for the grocery store with most annual sales per square foot of retail space. People drive from New Jersey to buy fresh produce here and enjoy serenades by employees costumed as barnyard animals. Your test is devilishly simple: Can you run in for just one item and get out before rush hour hits? You march in, oblivious to the systems that are tracking sales of the store's 1,000 items by the hour and churning out reports that help managers keep hot-selling items in stock, weed out the dogs and staff enough registers to handle the traffic peaks. All you want is some cocktail shrimp.

Strangely, Stew's anticipated you. While some customers enjoy picking over every strawberry, others want to get in and out fast. Using historical POS data, store systems predict when the "grab and run" customers will arrive and make sure clerks have enough prepackaged items ready for them, according to Executive Vice President and CIO Stephen Guthman. So sitting there in the case is a shrink-wrapped package of fresh cocktail shrimp.

Moments later you're back in the Lexus. As you pull out of the parking space, a sign with one of Stew Leonard's folksy mottoes catches your eye. "Rule 1: The customer is always right. Rule 2: If the customer is ever wrong, reread Rule 1." What might have seemed like hokum earlier in the day now reads like wisdom, a simple secret shared between our CIO-100 winners and their royal patrons. ☐



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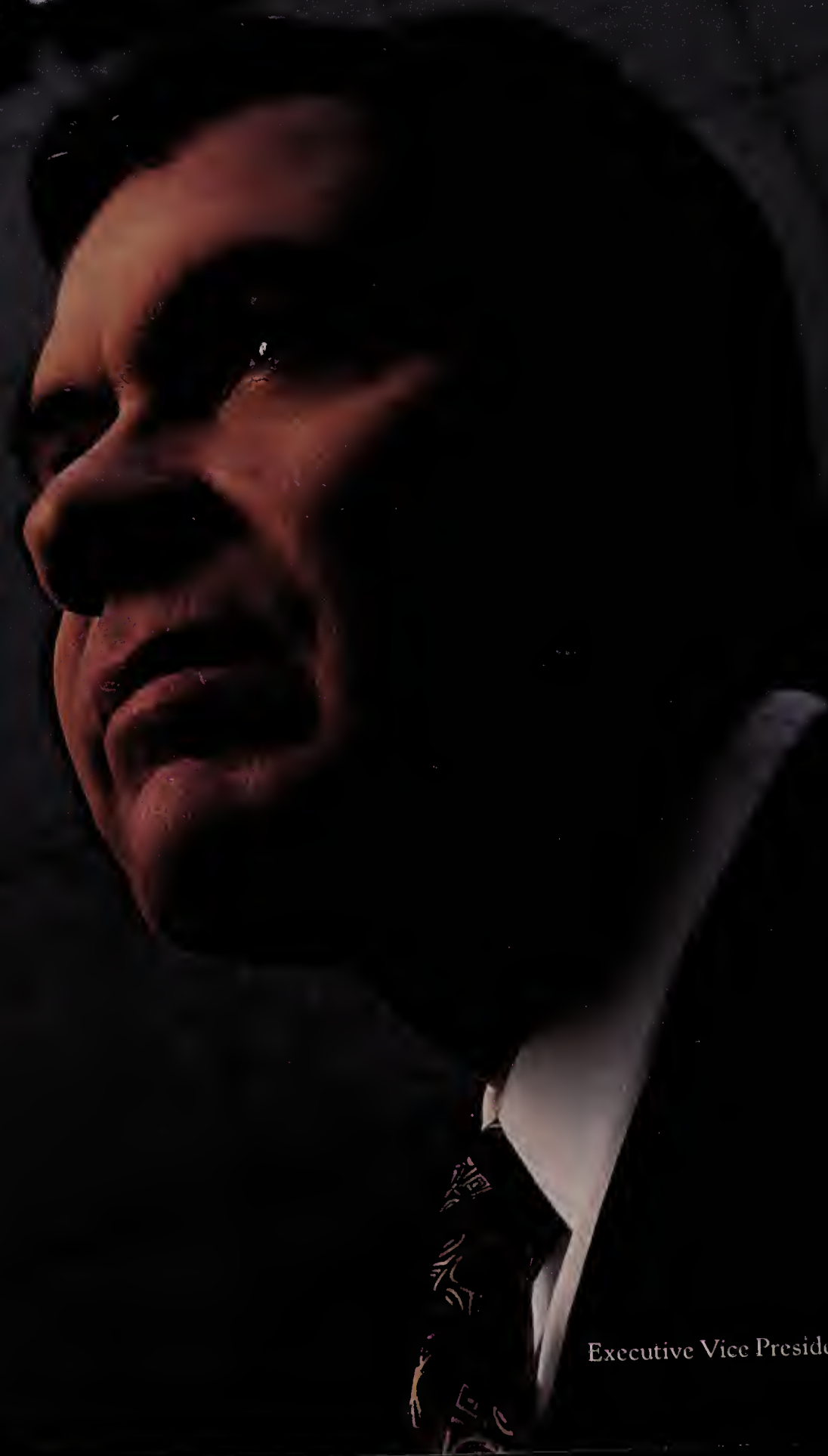
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They also serve who only stand and wait...after first busting their backsides to provide the best infrastructures, applications and interfaces, and the training and backup to go with them

BY MELANIE MENAGH

Between the intention and the reality of delivering top-notch customer service lies a lot of unseen excellence devoted to supporting front-line representatives with service-enhancing IT, organizational structures and focused training. If the people who directly serve end customers aren't well-served themselves, then even the best intentions will founder.

Furnishing everything from food to physicians to financial services, the 21 winners in the consumer-services category are acutely aware that their businesses live or die based on the speed, ease, cost and agreeability of customer interactions. Knowing this, their CIOs work closely with colleagues in sales, marketing, oper-

ations and customer service to choose technologies that provide cutting-edge service without booting the corporation's ROI numbers into the abyss.

According to Joseph V. Perno, vice president of personal-lines systems at **Chubb**, a multiline insurance company, the most successful systems tend to be co-invented by their users. So the system-design process at Chubb is a collaborative one. "Our internal customers have to be at ease with their equipment," said Perno. "We actively solicit their input to be sure the systems work the way [the users] work and think, and that it's not just whiz-bang technology." For instance, Chubb has developed a customer system with a graphical user interface that is organized "like a spiral binder with subject tabs," said Perno. "We have a daily diary for

each customer that generates a 'to do' list for our salespeople." The system was based on suggestions from Chubb's sales force.

Listening to such input up front pays added dividends over time. "People support best what they build," said Al Kuebler, senior vice president of systems technology and CIO for **AT&T Universal Card Services**. "Our UWIN [Universal Windows] technology was developed by a team that was one-third staff associates—that's why the system is so intuitive and adaptable."

Associates' input is encouraged across the board at AT&T Universal Card, said Kuebler. "Change is a democratic process. There should be no career consequence for people who take a risk—even if they make a mistake. We prefer decisions to be made at the edge rather than at the center—there are no 'backroom deals.' Giving our associates this autonomy releases great energy and creativity."

At **U.S. Healthcare**, creative thinking is stimulated through something called the Intuition Program. "Anyone with a good idea or an implemented idea is rewarded," said Richard Castor, vice president and CIO. "It's a very active and well-used program." Actively soliciting input from staff has "increased our staff-retention levels," said Castor. "Allowing them to offer solutions reduces stress and increases their empowerment, their sense of their importance and their value to the company." Training—initial and ongoing—is essential to keeping internal customers up to snuff so that they can get the most out of their equipment and, hence, offer more to their customers.

Employees who directly serve customers need more than classroom training alone. At **Taco Bell**, "we have mentor-type rather than sit-down training," said Susan Cramm, vice president of the information technology group. "New employees work with teams that specialize in customer service, so they're tutored by the best; they don't just go in cold." (See related story.)

Chubb offers a continuing in-house curriculum to help staff cross-train "so that they can move around the organization and increase their technical skills," said Perno.

SNAPSHOT: TACO BELL

WINNING THE WHOLE ENCHILADA

Customer service is Taco Bell's prime weapon in the furious fast-food wars. Sales have grown 120 percent over the last five years, now reaching \$3.3 billion worldwide. Among other offerings, that's 4 million tacos sold every day, from Tokyo to Toronto to Tampa. IS is an important ally at every level.

"All our equipment is seen from a service perspective," said Susan Cramm, vice president of MIS. "Store managers have decision-support tools to allow them to spend their time with customers, not doing paperwork. We also have technology out front that allows us to accelerate the speed of service." New to U.S. outlets (they were first tried overseas) are handhelds wielded by roving servers to take orders from people inside the restaurants, without their having to stand in lines. Order-processing has been reduced from an average of 105 seconds to 30 seconds.

Employee training is a team sport. Recruits spend time with people in their geographic region who are key players in the customer-service endeavor. "Teams share the learning and build an overall level of confidence," Cramm said. The teams provide ongoing ideas and support to all Taco Bell outlets in their region. "Major decisions are made by the teams; we allow them broad spans of control." And pay incentives are offered for customer-service improvements. Team members "personally benefit from improvements in customer service, so individuals work together to help one another." Cramm noted that "the team idea began in manufacturing, but I don't think many of our competitors are doing it in this business."

Customers, satisfied or not, are actively solicited for their views. Taco Bell has an 800 number for comments and complaints and also surveys customers in the restaurants. This information does not end



CRAMM: Teamwork and the right technology drive service improvements at Taco Bell.

PHOTO BY S. PETER LOPEZ

up in some middle-management backwater; all customer-service feedback goes directly to the restaurant, "because improvements are only valid at the restaurant level," said Cramm.

Taco Bell's high-tech, service-oriented approach has made the company (and its employees) "incredibly adept at adapting to change," said Cramm. "We have marvelously creative people who can look at the same problem, and two people can implement a solution in two different ways."

Cramm said Taco Bell staff run against the popular stereotype of fast-food employees. "A lot of people think that workers in this industry aren't educated or computer-literate," she said. "We've found the opposite. They're young, they're energetic, and they're really interested in the technology."

In fact, Taco Bell's high-tech approach has had the fortuitous (and, perhaps not so surprising) fringe benefit of drawing exceptional people to work for the company. "People tell me, 'If it wasn't for the technology in the store, I wouldn't work here,'" Cramm reported. "We installed the equipment to better serve the customer, but it ended up making us more attractive as an employer. We knew the technology would make it a better job, but it's great to have such strong reinforcement from our managers."

—M. Menagh

Management training is crucial too. "When problems arise, some people's reaction is to throw more technology at it," said Bruce Speckhals, vice president of MIS for **Ritz-Carlton**. "[But] you might rather need more training. Often our system is data-rich, but our staff may just not be using it." So the hotel chain holds ongoing management seminars in IS that "show managers how to take total advantage of IS capabilities that they might not have known they had."

All the IS training and seminars boil down to one thing. "We at MIS are the stage crew and back-drop so our associates can concentrate on customer service," said AT&T Universal Card's Kuebler.

Solid support, however, must go beyond training and seminars. The technological and organizational frameworks for sustaining excellent service must also be sound. Chubb's Perno believes what's needed are systems "that respond quickly and bring a level of flexibility to support changing business needs." Not surprisingly, speed and flexibility were cited time and again by our winners as cardinal virtues of any "customer-centric" IS program—along with cost-effectiveness, responsiveness, availability and compatibility with other systems.

At the discount-brokerage firm **Charles Schwab**, new systems have been implemented so that the company can transact buy-and-sell orders in real time, making trades while the customers are right there on the line. "We're moving away from mainframes to distributed, multiprocessor network-based systems," said Mark G. Barmann, executive vice president and CIO.

Barmann believes Schwab's efforts to downsize systems and reengineer business processes ("chopping up... redundancy and scar tissue") will ultimately redound to the customer's benefit. These reforms "will reduce the unit cost of computing and in-

crease the speed of development," he said. As a result, the company will be able to build "IT-based products from a small set of semi-finished assemblies that can be combined and recombined in a very swift response. We can better pick, mix and match our business processes to our underlying hardware platform."

This maneuverability is key in a volatile industry, Barmann added. "When the market is busy, that's when our customers need to get through to us the most. We'll fire up three or four servers to use for trading; then, when trading slows down, they can

be used for other things."

In the rental-car business, where rivals often stand shoulder-to-shoulder at airports and hotels, speedily getting customers in and out of cars is the grail. "Proximity breeds competition," said Gary Orrell, staff vice president of MIS at **Hertz**. "So customer service is at the core of practically everything we do."

Hertz tackles competitors head-on by offering customers a bevy of IT-enabled choices for checking in and out. Renters can return cars to roving parking-lot staff equipped with handheld radio-frequency equipment, check themselves out using ATM-like terminals, or use Express return—similar to punching a time clock—where the paperwork is completed and sent to the client in 24 hours.

Behind the scenes at its corporate headquarters in Oklahoma City, Hertz is in the process of centralizing its worldwide IS operations. "It's more economical for us to invest in communications than in multiple systems in multiple offices and management centers," said Orrell. "And our customers in Paris will have the same experience and the same services available that they have in Pittsburgh."

Technology that helps customers have a consistent experience of the company can also help the company have a consistent experience of its

"We want our staff to be connecting with our customers, not staring down at a machine."

—Bruce Speckhals



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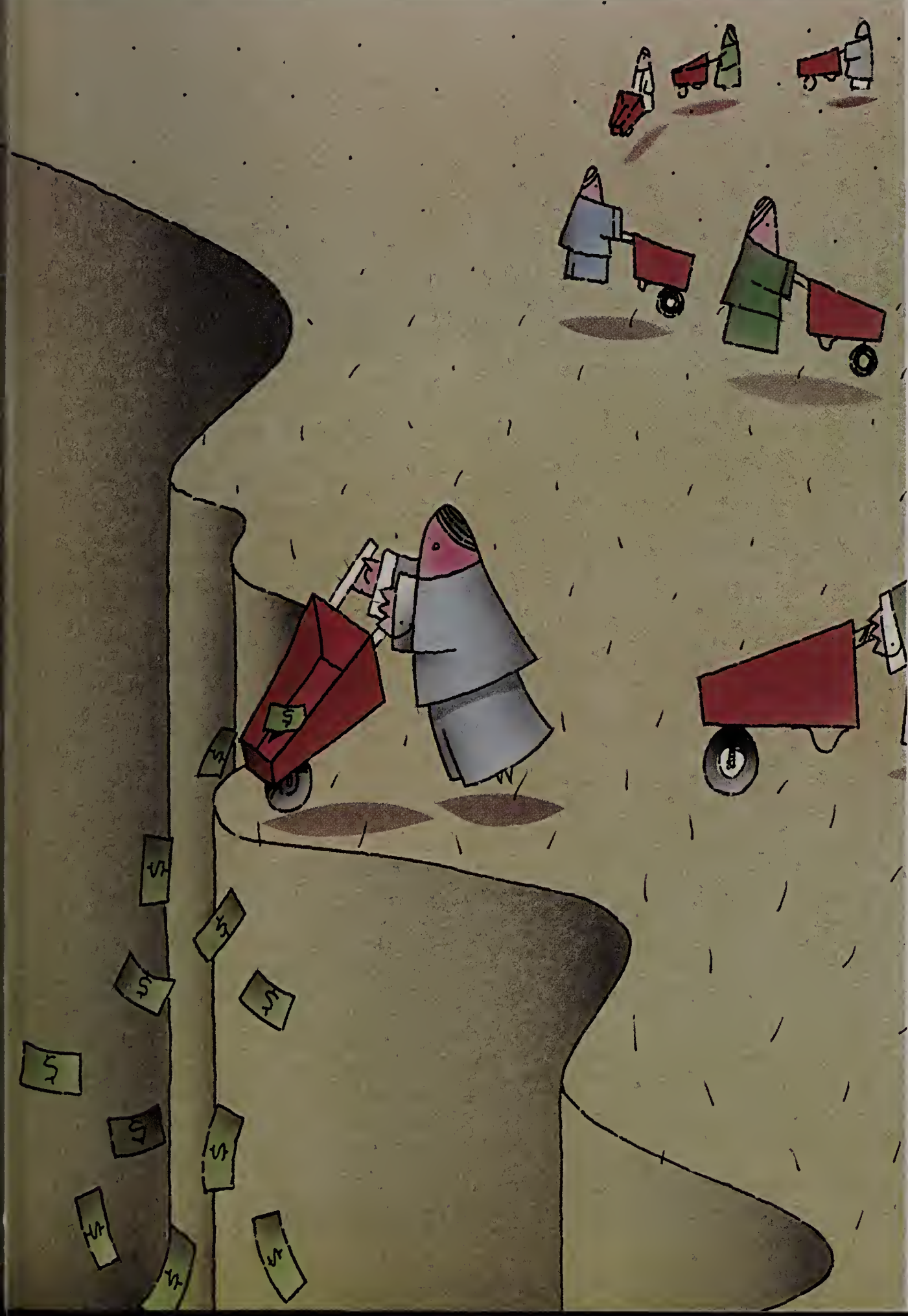
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customers. Consider caller-identification telephone systems. Although some sort of caller-ID system is a commonplace customer-service tool these days, the underlying applications are where a company can really

stand out. AT&T Universal Card's system goes beyond merely identifying an incoming call; it knows that a particular caller prefers doing business in Spanish, for instance, and automatically routes the call to a Span-

ish-speaking representative. If a guest at the Ritz-Carlton in Atlanta makes it known that she reads *The Los Angeles Times* and prefers a firm mattress, that information goes into a database, and when she checks in at Aspen the following week, the requisite newspaper and bedding will be waiting for her.

When the calls are outgoing, detailed knowledge about customers can be even more valuable. A **Banc One** customer's files list family information, so if there's a 16-year-old in the house, a company representative might contact the customer to discuss a change in auto insurance, or perhaps a new-car loan. Chubb even tracks hobbies: If a client collects fine furniture, a sales associate will call to suggest that her \$17,000 Chippendale chair needs insuring above and beyond a standard homeowner's policy.

As for the future of customer-service technology, one CIO forecasts systems that extend the reach of the company's offerings into places where potential customers gather. Robert L. Barrett, president and COO of Banc One Services, predicts that someday there will be "kiosks in shopping centers or standalone branches that are four feet in diameter. There are lots of things you can do if communications are good enough. With 100 million people who know how to use Nintendo, if you can make the interface as good as Mario, you can get people to use it."

Kuebler envisions one-stop home shopping, with a twist: "Suppose that in five years the videophone becomes more prevalent. You could talk to the same customer-service representative—get past the PIN number to face-to-face. The customer could say to our associate, 'Get me tickets for a play this Saturday, and arrange a limo there, and move my money around a little bit.' And there would be one statement for all that, instead of 30."

So in the not-too-distant future, a personal-services company could become concierge to the world? "Not a bad idea, is it?" said Kuebler. ☐

Melanie Menagh is a freelance writer based in Brooklyn, N.Y.

THE TOP CONSUMER-SERVICES COMPANIES

COMPANY/LOCATION	ANNUAL REVENUES	TOP IS EXECUTIVE	CEO	TYPE OF BUSINESS
AT&T New York	\$65 B	William F. Osl Jr. VP/Info. Mgmt. Svcs.	Robert E. Allen Chmn. & CEO	Comm. svcs., equip. & systems
AT&T Universal Card Services Jacksonville, Fla.	\$19 B (card purchases)	Al Kuebler Sr. VP/Sys. Tech. & CIO	David K. Hunt Sr. VP/IT Svcs.	Markets calling & bank credit card
Banc One Corp. Columbus, Ohio	\$72 B	Robert L. Barrett Pres. & COO/Banc One Services Corp.	John B. McCoy Chmn. & CEO	Financial services
British Airways PLC Hounslow, England	\$8.64 B	Brian Hayden Head/Info. Mgmt.	Lord King of Wartnaby Chmn.	Air transportation
Charles Schwab Corp., The San Francisco	\$750 M (Net)	Mark G. Barmann Exec. VP & CIO	Charles R. Schwab Chmn. & CEO	Financial services
Chubb Corp., The Warren, N.J.	\$4.9 B	Chuck McCaig Sr. VP/IS	Dean R. O'Hare Chmn. & CEO	Real estate & insurance; holding co.
Continental Cablevision of St. Paul, Minn., Inc. St. Paul, Minn.	\$25 M	N/A	Randall Coleman VP & Dist. Mgr.	Cable television
Fidelity Investments Boston	\$1.8 B	Albert Aiello Pres./Fidelity Investments Systems Co.	Edward C. Johnson III CEO & Chmn.	Financial services
First Chicago Corp. Chicago	\$2.671 B	Donald R. Hollis Exec. VP	Richard L. Thomas Chmn., Pres. & CEO	Banking & related financial services
Four Seasons Hotels Ltd. Toronto	\$878.9 M (Canadian)	Michael S. Hwu Mgr./Sys.	Isadore Sharp Chmn. & Pres.	Luxury hotels
Hertz Corp., The Park Ridge, N.J.	\$2.8 B	Gary Orrell Staff VP/Mgmt. IS	Frank A. Olson Chmn. & CEO	Rental cars
McDonald's Corp. Oakbrook, Ill.	\$20 B	Carl Dill VP/IS	Michael R. Quinlan Chmn. & CEO	Restaurants (franchise)
Ritz-Carlton Hotel Co., The Atlanta	\$650 M	Bruce Speckhals VP/MIS	Horst Schulze Pres. & COO	Luxury hotels
Rosenbluth International Philadelphia	\$5 B	Robert Funk VP/IS & CIO	Hal F. Rosenbluth Pres. & CEO	Global-travel management
Southwest Airlines Dallas	\$1.69 B	Robert W. Rapp Jr. VP/Sys.	Herbert D. Kelleher Chmn., Pres. & CEO	Commercial airline
Swissair Zurich, Switzerland	\$3.9 B	Hans Eisele VP/IS	Otto Loepfe Pres. & CEO	Air transportation
Taco Bell Corp. Irvine, Calif.	N/A	Susan Cramm VP/IT Group	John E. Martin Pres. & CEO	Restaurants
U.S. Healthcare Inc. Blue Bell, Pa.	N/A	Richard Castor VP & CIO	Leonard Abramson Princ. Exec. Officer	Managed health-care services
United Services Automobile Association San Antonio, Texas	\$5.345 B	Donald R. Lasher Pres./IS Div.	Robert F. McDermott Chmn. & CEO	Insurance & financial services
Walt Disney Co. Burbank, Calif.	\$7.5 B	Sharon D. Garrett VP/IS Cust. Service	Michael D. Eisner Chmn. & CEO	Entertainment, film & theme parks

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State of Georgia
Hennepin County, Minn.
Hillsborough County, Fla.
Internal Revenue Service
Commonwealth of Kentucky
Library of Congress
Los Angeles County, Calif.
Madison, Wis.
State of Minnesota
Ramsey County, Minn.
City of San Diego
City of Seattle
Republic of Singapore
Smithsonian Institution
Social Security Administration
State of Texas
State of Vermont
Wake County, N.C.

Despite government's reputation for waste and inefficiency, a few local, state and federal agencies are restoring truth to the term "public servant" **BY MEGAN SANTOSUS**

If one message came through loud and clear during last year's presidential election, it was that the old bureaucratic ways of doing business are no longer acceptable. People expect government to be accessible and responsive, to provide better management and services, and to accomplish all this by improving processes and efficiency rather than by raising taxes. CIO-100 winners in the government category exemplify a new breed of public agency whose highest priority is serving customers rather than preserving bureaucracies.

People want government to operate like a business, and they are calling for it to adopt many of the same

management practices used by the private sector to restructure. Several of this year's winners, notably the **Social Security Administration** and the governments of **San Diego** and **Seattle**, have instituted total quality management programs as part of their efforts to enhance customer service. And like their counterparts in the private sector, the CIO-100 winners are using IT as a tool for change, experimenting with such technology sets as client/server computing, EDI, imaging, online services, CD-ROM and automated teller machine (ATM)-style kiosks.

While the primacy of the customer has long been a given in business, the same is not true for public-sector organizations, according to Patricia

Fletcher, a professor at the Department of Information Systems at the University of Maryland, Baltimore County. In the 1970s and '80s, governments tended to focus more on administrative issues, she said.

The transition to an emphasis on delivering services has created a new interest in IT. "The real motivator for implementing strategic IT is to improve service or provide new services," said Larry Bernosky, director of the Center for Information Management at the National Academy of Public Administration (NAPA) in Washington. "A lot of creative technologies can contribute to cost-cutting, but improving the delivery of services is the ultimate goal."

This year's winners include municipal, county, state and federal organizations, and their IT projects range from **California's** leading-edge multi-service kiosks (see related story) to the more-routine fiber-optic network used to connect county departments and buildings and to facilitate access across multiple platforms and databases in **Wake County, N.C.** By using IT to streamline once-tortuous transaction processes and to improve public access to a range of services and information, the winners are tackling two of the most common complaints about government.

Minnesota has a long-standing reputation as both a hotbed of progressive government and a leader in providing innovative services to its citizens. (Three CIO-100 winners are from the Gopher State.) Statewide agencies routinely solicit feedback from citizens and incorporate that information into their planning processes, according to Stephen L. Gammon, Minnesota's assistant commissioner of the Information Policy Office (IPO). As a result, many systems have been designed and implemented to meet the stated needs of Minnesota's citizens.

For example, Minnesotans receiving public assistance use encoded cards to withdraw cash from an automated teller/point-of-sale system implemented by the Department of Human Services. The process eliminates the problems caused by checks lost or delayed in the mail, and recipients without checking accounts no longer have to pay a fee to cash their checks.

SNAPSHOT: STATE OF CALIFORNIA

KIOSK, AND YE SHALL RECEIVE

Rising unemployment, a budget crisis, and assorted social and environmental ills have tarnished California's Golden State reputation. With public dollars scarce, the state is increasingly turning to IT as a way to deliver services cost-effectively. Instead of being cut back, many services have actually been expanded, thanks to technology that lets citizens conduct transactions after-hours and from remote locations.

"The traditional ways of doing business are no longer adequate in these times of budgetary restraints," said Steve Kolodney, director of the state's office of information technology. "We are very concerned with serving our customers, so we've had to rethink how things are done. With technology, we've broken down a lot of the barriers between government and citizens."

One of California's most ambitious IT projects is the recently completed 16-month pilot of a network of bilingual ATM-style kiosks. Russ Bohart, the director of the health and welfare data center who is leading the effort, said the system addresses the biggest single problem citizens face: not knowing where to find services or information.

"If they don't know where to go, they can't even look up a number in the phone book," Bohart said. The system uses icons that stand for subjects on which citizens may need information. Users work their way through a tree-structured menu with the help of audio instructions.

Citizens can use the kiosks, located in shopping malls, grocery stores and senior-citizen centers, 24 hours a day to conduct transactions or obtain information in more than 90 subject areas.

For example, unemployed Californians can select skill sets and preferred geographic locations from a menu; the system comes back with the number of appropriate openings and the address and telephone number



KOLODNEY (left) and BOHART: IT is breaking down barriers between government and citizens.

PHOTO BY CINDY CHARLES

of a convenient employment office. People can also use the kiosk to obtain and pay for birth certificates, conduct automobile-registration and -renewal transactions, and get information about recreational facilities, education, nutrition and child abuse.

The kiosks seem to be a hit with the public. Replying to feedback questions that appear onscreen after each transaction, more than 50 percent of respondents said they used the kiosks after normal business hours; and half reported that the kiosks saved them a telephone call, letter or visit to a government office. After only four months, half of the respondents indicated that they were repeat users.

In anticipation of a statewide network, the Department of Motor Vehicles is issuing driver's licenses with credit-card-like magnetic strips. When the network is in place, the cards will serve as ID at the kiosks. Ultimately they will be used in conjunction with users' fingerprints to provide security for more-sensitive transactions.

Other IT-based initiatives include an electronic funds-transfer system that lets businesses owing more than \$50,000 in state taxes make payments in one lump sum. And California is reengineering its purchasing functions; there are plans for an EDI-based paperless system.

-M. Santosus

The same cards can be used in place of food stamps.

Like many states, Minnesota has to contend with a population that is increasingly dependent on the government for a variety of services. "The service needs today are becoming more complicated," Gammon said. "The days when one agency handled everything are over."

What's more, the participation of multiple agencies is often required to deliver a single service. As a result, the IPO is responsible for developing a statewide information architecture that allows agencies to share data. For example, Minnesota is trying to control and manage the costs of health care, and many agencies (including human services, administration, finance and revenue) are involved in the process. Physically linking computer systems is the easy part of the IPO's job. "The more difficult part," said Gammon, "is getting control of the data so that we can collect it at only one point and then share it throughout the state."

Texas has an IT strategy similar to Minnesota's. The Department of Information Resources provides oversight to state agencies for planning, procurement, implementation and management so that the agencies can in turn provide better service to customers. The Comptroller of Public Accounts office gives customers direct access to a number of services via an electronic bulletin board. Anyone with a modem can browse through and download economic data, population and employment forecasting, sales-tax data, and a state and federal grant directory. This "Window on State Government" system receives more than 300 calls a day, according to Deputy Comptroller Billy Hamilton. Kiosk technology is also being piloted in an effort to make this information even more accessible.

Variations on the electronic town hall championed by Ross Perot are alive and flourishing in many local and county governments as well. "There's an image that government is often a bureaucratic entity that is not responsive, progressive and innovative," said Manny Garcia, director of the information technology

department for **Dade County, Fla.** "That's why public access is our number-one priority."

Wake County provides citizens with dial-in access to major systems such as real-estate-ownership and -appraisal files at little or no cost. Currently, local news-media outlets are connected directly to the county's E-mail system, from which they can electronically access schedules and press releases, according to In-

"A lot of creative technologies can contribute to cost-cutting, but improving the delivery of services is the ultimate goal."

-Larry Bernosky



formation Services Administrator Russell W. Goff. In the near future, Goff hopes to expand the service to provide a communications link between the county courthouse and real-estate brokers and appraisers who can request specific information such as titles or deeds.

The government of **Hennepin County, Minn.**, has positioned general-purpose terminals at public locations, allowing citizens to access information on land deeds or property taxes and evaluations. Public records from the district court are also available electronically. Director of IS Gary Kamp reported that the county is currently evaluating multimedia and kiosk-based systems. "We're looking at anything that will provide customers with all the information they need so that they won't have to make a trip to the county offices anymore," he said.

While the White House paints grand visions of an information super-highway, a number of federal entities are satisfying their national con-

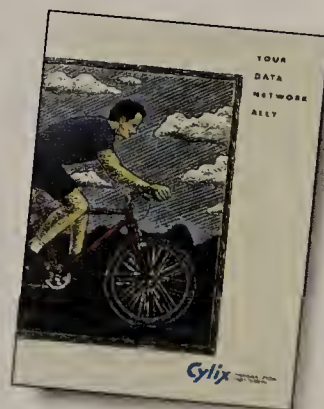
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stituencies with more prosaic applications. The **Library of Congress**, for example, recently began offering all public files over the Internet network; they are now available both nationally and internationally. The library also plans to make its public collections accessible from remote terminals, equipped with graphical user interfaces and driven by a mouse or touch screen, which might be located in such strategic places as Capitol Hill. In addition, a digital imaging system has supplanted the old microfiche-based document-delivery service for members and staff of the U.S. Congress. The new system accommodates more subscribers, reduces turnaround time for requests for material from two weeks to same-day service and produces superior prints on demand.

Even the **Internal Revenue Service** is going the extra mile to ensure that paying taxes is a more efficient—if still unpleasant—fact of life. For the majority of taxpayers whose interaction with the agency begins and ends with filing a return, the IRS is offering alternatives to the traditional paper-based process. These include EDI-based electronic filing applications and a touch-tone system that has been successfully tested in Ohio for the past two years.

The IRS is also trying to reduce the administrative burdens imposed on taxpayers who require follow-up contact after their initial filing. Toward that end, the agency is starting to make information available online so that taxpayers can get all their questions answered by a single source, rather than being bounced around among employees as is now often the case.

Virtually every American citizen is at one time or another a client of the Social Security Administration (SSA). The agency uses online technology to

provide value-added services to this massive customer base. Previously, social-security-card applications had to be filled out in person at an SSA office, and applicants had to wait six weeks for delivery. Now the numbers are issued automatically when parents check a box on the birth certificate, and the cards are processed within five days of the SSA receiving the information. (Delivery times for the cards vary depending on how long it takes each state to process birth records.)

For those who are closer to becoming retirees than new parents, the SSA can project income and benefits at the ages of 62, 65 and 70. Individuals simply fill out a request card with their current and projected earnings and return it to the SSA. All of the agency's data is now online, so all it has to do is run a financial-planning application to generate the requested information. If it turns out that the SSA has incorrect information about an individual's earnings, the error can be detected now, instead of 20 years down the road. As a result, the SSA has saved millions of dollars.

In addition, the SSA can schedule appointments at local offices for citizens who call its toll-free number. Agents pull up an online calendar, set up meetings, and inform callers of what documents they should bring. "We have about 20 different online services, and we operate one of the largest 800-number services in the country," said Deputy Commissioner for Systems Renato A. DiPentima. "The online technology has really helped us modernize, and now we can concentrate on improving our service." ☐

THE TOP GOVERNMENT AGENCIES

AGENCY/ LOCATION	TOP IS EXECUTIVE	TOP ADMINISTRATIVE OFFICIAL
California, State of <i>Sacramento, Calif.</i>	Steve Kolodney <i>Dir./IT/Dept. of Fin.</i>	Pete Wilson <i>Governor</i>
Dade County, Fla. <i>Miami</i>	Manny Garcia <i>Dir./IT</i>	Joaquin Avino <i>County Mgr.</i>
Georgia, State of <i>Atlanta</i>	Paul Mason <i>Deputy Commissioner/Comp. Svcs. /Dept. of Admin. Svcs.</i>	Zell Miller <i>Governor</i>
Hennepin County, Minn. <i>Minneapolis</i>	Gary Kamp <i>Dir./IS</i>	Robert Hanson <i>County Admin.</i>
Hillsborough County, Fla. <i>Tampa, Fla.</i>	Theodore I. Bahn <i>Dir./IT</i>	Frederick B. Karl <i>County Admin.</i>
Internal Revenue Service <i>Washington</i>	Henry H. Philcox <i>CIO</i>	Michael P. Dolan <i>Acting Commissioner</i>
Kentucky, Commonwealth of <i>Frankfort, Ky.</i>	Stephen N. Dooley <i>Commissioner/IS Dept.</i>	Brereton C. Jones <i>Governor</i>
Library of Congress <i>Washington</i>	Herbert S. Becker <i>Dir./IT Svcs.</i>	James Billington <i>Librarian of Congress</i>
Los Angeles County <i>Los Angeles</i>	Michael J. Henry <i>Asst. Admin. Officer</i>	Harry L. Hufford <i>Chief Admin. Officer</i>
Madison, City of <i>Madison, Wis.</i>	Don Ramig <i>DP Mgr.</i>	Paul Soglin <i>Mayor</i>
Minnesota, State of <i>St. Paul, Minn.</i>	Stephen L. Gammon <i>Asst. Commissioner/Dept. of Admin./Info. Policy Office</i>	Arne Carlson <i>Governor</i>
Ramsey County, Minn. <i>St. Paul, Minn.</i>	Matt Overmoen <i>Ops. Mgr./DP</i>	Terry Schutten <i>County Mgr.</i>
San Diego, City of <i>San Diego</i>	Robert J. Metzger <i>Exec. VP/San Diego DP</i>	Maureen O'Connor <i>Mayor</i>
Seattle, City of <i>Seattle</i>	Leonard Roberts <i>Dir./IS</i>	Norman B. Rice <i>Mayor</i>
Singapore, Republic of <i>Singapore</i>	Ko Kheng Hwa <i>Chief Exec./Natl. Computer Board</i>	Goh Chok Tong <i>Prime Minister</i>
Smithsonian Institution <i>Washington</i>	Vince Marcalus <i>Dir./Office of Info. Resource Mgmt.</i>	Robert McCormick Adams <i>Secretary</i>
Social Security Admin. <i>Washington</i>	Renato A. DiPentima <i>Deputy Commissioner/Sys.</i>	Louis D. Enoff <i>Acting Commissioner</i>
Texas, State of <i>Austin, Texas</i>	Ann S. Fuelberg <i>Exec. Dir./Dept. of Info. Resources</i>	Ann Richards <i>Governor</i>
Vermont, State of <i>Burlington, Vt.</i>	N/A	Howard Dean <i>Governor</i>
Wake County, N.C. <i>Raleigh, N.C.</i>	Russell W. Goff <i>IS/Admin.</i>	Richard Y. Stevens <i>County Manager</i>

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As part of CIO's service to its customers (readers), we go through a long and painstaking process to select and research our CIO-100 winners

MAKING A LIST

As in previous years, we have relied on the admittedly subjective judgment of experts to pick our CIO-100 winners. (Customer-service requirements vary too much for there to be a set of yardsticks that applies to all organizations.) Our judges are consultants, academicians, editors, and business- and government-association officials who specialize or have expertise in the field of customer service. We used different judges for the private and public sectors.

Voting took place in two rounds. In the first round, we asked the judges to nominate organizations in each category that excel at providing customer service, that use IT to boost customer service and that consider customer service important to their success. Judges could nominate an organization in up to two categories and vote for business units as well as overall enterprises. Organizations nominated by more than half the judges automatically won a spot on the CIO-100 list.

In the second round, judges voted "yes" or "no" on the enterprises that had been nominated; judges could pass on organizations with which they were not familiar. The organizations that received the highest percentage



of "yes" votes became finalists. All second-round winners were also required to have been voted on by at least 25 percent of the judges and to have received a "yes" vote from 75 percent of those voting. (Only 17 companies met this criteria in the business-services category.)

A CIO staff member researched the competitive and financial standing of each finalist; those that passed this screening made the list. The final list of winners includes 87 organizations rather than 100 because 12 won in two categories, and one organization won in three categories.

Inevitably, some deserving companies did not make the CIO-100. We are confident, however, that the organizations included have attained the highest levels of customer service.

MEET THE JUDGES

BUSINESS

Gary Bargatze

Senior vice president, Technical Assistance Research Programs (TARP)
Arlington, Va.

Leonard Berry

JC Penney chair of retailing studies; professor of marketing; director, Center for Retailing Studies, Texas A&M University
College Station, Texas

Patrick M. Byrne

Managing director, North



America, A.T. Kearney Inc.
Alexandria, Va.

Leslie Harps

Publisher, Customer Service Group
Silver Spring, Md.



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Christopher Hart

President, The TQM Group Ltd.
Boston;

author of *The Baldrige and co-author of Service Breakthroughs: Changing the Rules of the Game*

Michael Hepworth

President, Michael Hepworth & Associates Inc.
Toronto

Thomas R. Horton

University adviser, Stetson University
Deland, Fla.;
retired chairman, American Management Association

Craig Jensen

Principal, Mercer Management Consulting Inc.
Lexington, Mass.

Paul Kanneman

Principal, Information

Systems Group
Booz, Allen & Hamilton
Dallas

Richard Lancioni

President, Customer Service International
Richboro, Pa.;
Professor of marketing, Temple University School of Business
Philadelphia

A. "Parsu" Parasuraman

Federated professor of marketing, Texas A&M University
College Station, Texas

David J. Reibstein

William S. Woodside professor and professor of marketing, Wharton School, University of Pennsylvania
Philadelphia

Jagdish N. Sheth

Charles H. Kellstadt professor of marketing and marketing

area coordinator, Emory Business School, Emory University
Atlanta;
co-author of *The Customer Is Key*

Michael E. Treacy

President, Treacy & Co.
Cambridge, Mass.

Richard C. Whiteley

Vice chairman, The Forum Corp.
Boston;
author of *The Customer Driven Company: Moving from Talk to Action*

Fred D. Wiersema

Vice president, CSC Index Inc.
Cambridge, Mass.

Ron Zemke

President, Performance Research Associates Inc.
Minneapolis;
author of *The Service Edge*;
co-author of *Managing Knock*

Your Socks Off Service and Service America!: Doing Business in the New Economy

GOVERNMENT**Patricia Fletcher**

Professor, Department of Information Systems, University of Maryland, Baltimore County
Baltimore

Peter Harkness

Editor and publisher, *Governing* magazine
Washington
Albert C. Hyde visiting associate professor, Department of Public Administration, American University
Washington;
Staff consultant, The Brookings Institution
Washington

Jerry Mechling

Director, Strategic Computing and Telecommunications in the Public Sector, John F. Kennedy School of Government, Harvard University
Cambridge, Mass.

Ellen Shubart

Editor, City and State newspaper
Chicago

Tina Sung

Senior quality executive, Federal Quality Institute
Washington

Woody Talcove

Director, Survey Design and Evaluation, International City/County Management Association
Washington

Costis Toregas

President, Public Technology Inc.
Washington

Anthony Trenkle

Project manager, "Service to the Citizens," General Services Administration
Washington

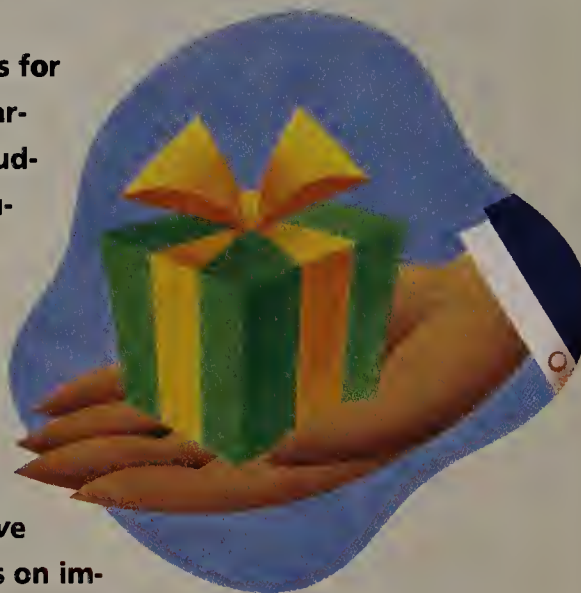
MANY THANKS

This year's CIO-100, as always, is the brainchild of many people. We wish to thank the consultants, information executives and CIO staffers whose advice and support helped bring the Customer-Service CIO-100 issue to life.

Richard C. Whiteley, vice chairman of The Forum Corp. (a Boston-based consulting firm specializing in customer service); Harry Wallaesa, a CIO editorial board member and vice president of MIS at the Campbell Soups Co.; and Peter G.W. Keen, chairman of the International Center for Information Technologies and a professor at Fordham University, all provided helpful advice during the planning phase of the CIO-100.

Whiteley and Wallaesa also deserve thanks for helping us locate judges, as do Donald A. Marchand, dean of the School of Information Studies at Syracuse University; Bob Martin, executive vice president and CIO at Wal-Mart; and Fred Wood, senior associate and project director of the Telecommunication and Computing Technologies program of the Office of Technology Assessment, U.S. Congress. Thanks are also due to Timothy B. Clark, editor and publisher of *Government Executive* magazine in Washington, for his suggestions on improving the selection process for government winners.

In addition, we wish to thank researchers Suzanne Sudan and Carol Zarrow, and Merrill Walsh, director of library services at International Data Corp., for helping us gather information on the CIO-100 winners; CIO staff member Bill Kerber for his beyond-the-call-of-duty assistance; and Mina Ahn Madore for helping us to kick off the project.



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The Great Enabler

To provide first-rate customer service, you need the right culture, people and processes. With those in place, technology can make your customer-service dreams come true.

BY GLENN RIFKIN

Bill Davidow, a venture capitalist at Mohr, Davidow Ventures in Menlo Park, Calif., and co-author of *Total Customer Service*, offers the prevailing opinion among information technology experts when asked about IT's role in customer service. "There is a tremendous tendency to confuse the power of technology with the power of leadership," he said. "Leadership without technology can do a pretty good job, but technology without leadership is powerless."

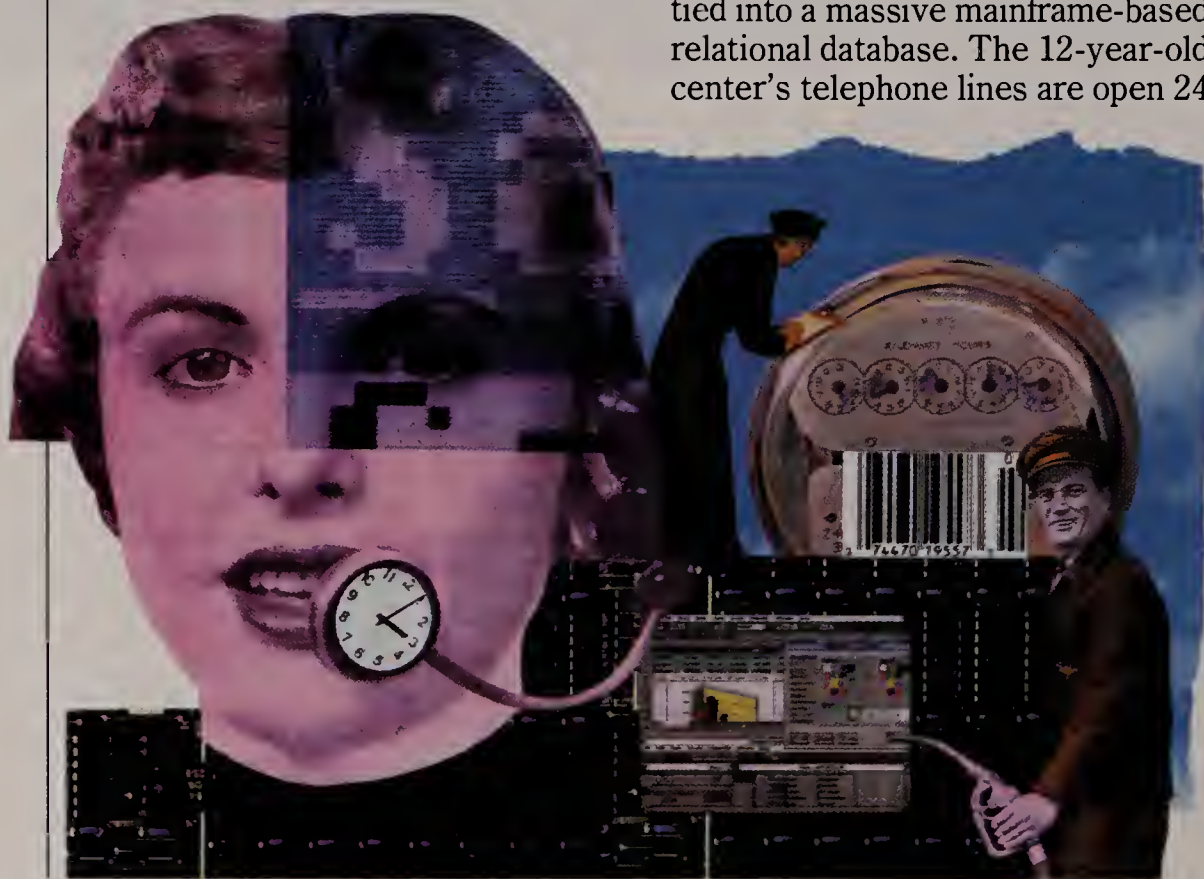
Even the most die-hard technologists admit that customer service begins with people and processes, well before technology makes its presence felt. But imagine what happens to customer service at companies where leadership and technology come together to form a vision.

At the GE Answer Center, in Louisville, Ky., more than 4 million calls are fielded each year by an army of customer representatives tied into a massive mainframe-based relational database. The 12-year-old center's telephone lines are open 24

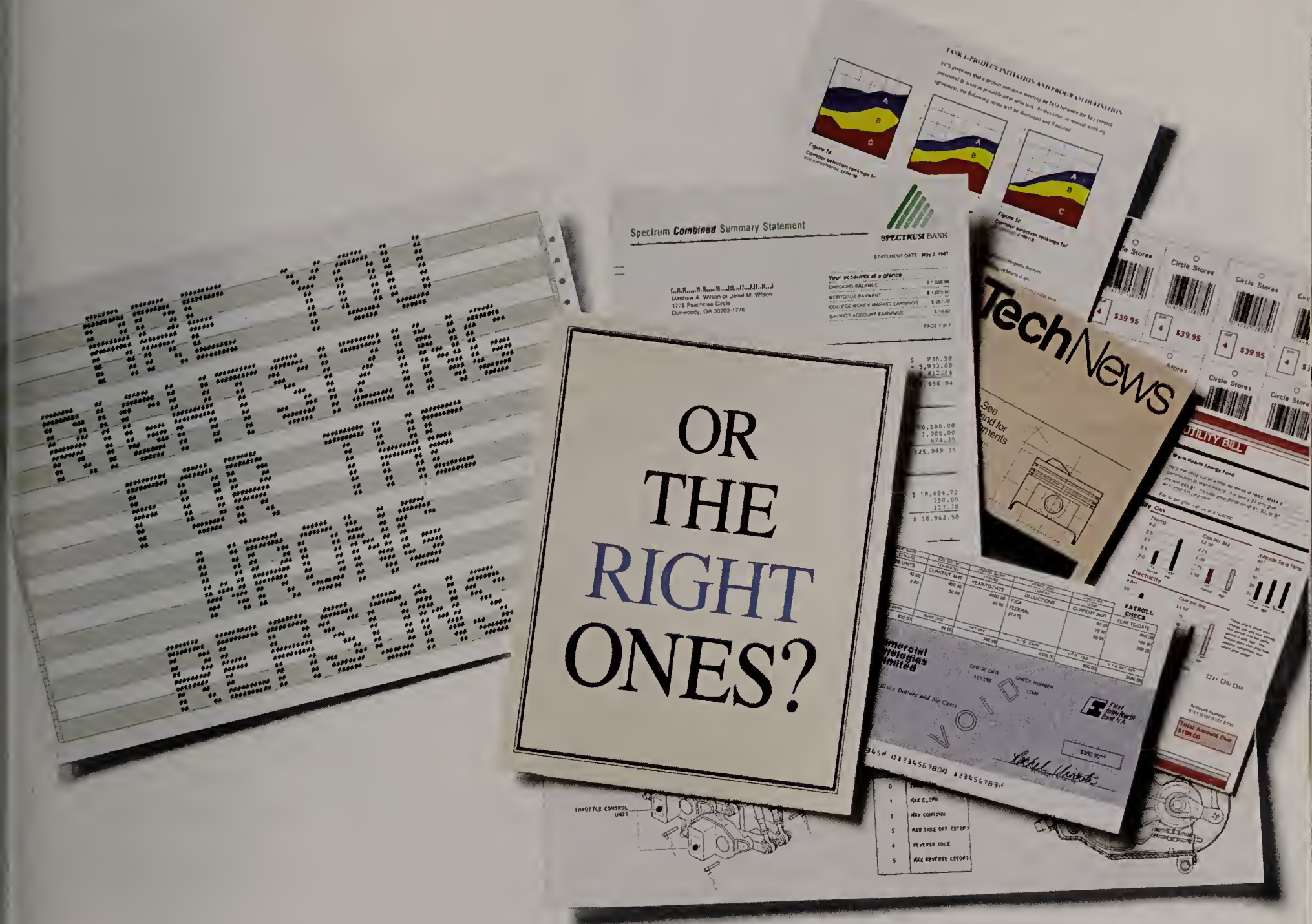
hours a day, 365 days a year for GE customers seeking such information as why the dishes are filming in their dishwashers or where they can purchase GE refrigerators. GE customer representatives use sophisticated search-and-retrieval software created by GE's IS staff to find answers, generally in one second or less. Surveys show that 95 percent of callers are highly satisfied with their experience.

At United Services Automobile Association (USAA), an insurance and financial-services institution based in San Antonio, Texas, a long-range systems plan implemented in 1986 has paid big dividends. A customer seeking a new insurance policy once waited a minimum of 14 days after making the request. Back then, 55 people and 55 procedures were involved in issuing the policy. Today, one person handling a four-minute phone call and tying into USAA's centralized computer system can issue the same policy overnight. In addition, USAA's pioneering image-processing system has changed the way the company does business and saved between \$5 million and \$10 million annually in reduced administrative and clerical costs (see "Where Are They Now?" *CIO*, April 1, 1993).

Florida Power Corp., in St. Petersburg, Fla., is installing a client/server-based customer-service system that will provide its customers with a spate of new cost-saving options (see "A Democratic Reform Movement," *CIO*, May 15, 1993). For example, customers can agree to let Florida Power turn off certain energy-guzzling appliances during peak power periods and save up to 30 percent on their electric bills. Eventually, the utility will be able to install smart meters with microchips that will inform customers how much electrici-



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ty each appliance uses each month and how to save by shutting off those that use the most during peak power periods. The meters will not only reduce customer bills but save Florida Power more than \$1 billion that would have been required to build new power plants.

American Airlines spends more than \$50 million each year developing and upgrading computer systems aimed at improving customer service. American recently installed a system that tracks every lightning strike in the United States. This allows flight planners to route flights around thunderstorms, thereby avoiding turbulence and delays and increasing the safety of every flight.

Current Technologies

IS executives were asked to name the technologies that have helped them reach their current levels of customer service. Responses are listed in descending order of mention.

- **Mainframes**
- **Wide-area/enterprisewide networks (both voice and data)**
- **Microcomputers/workstations**
- **Client/server systems**
- **Database technology**
- **Local area networks**
- **Electronic data interchange**
- **Handheld/mobile computers**
- **Minicomputers**
- **AI/expert systems**
- **Imaging**
- **Satellite networks**
- **Telephone-call distribution/management**
- **POS systems**
- **Wireless networks**
- **Distributed computing**
- **Voice response**

Companies, particularly those in the service sector, are rediscovering a fundamental truth: They can no longer simply pay lip service to customer service. In tight economic times, customers realize quickly that they have a lot of leverage, and they tend to flock to the company that provides the best service and support.

But the costs of achieving this level of excellence are high. In their 1989 book, Davidow and co-author Bro Uttal wrote: "The largest cost of producing great service is that of creating infrastructures—networks of people, physical facilities and information that support the production of customer service. Because the investment is great, building infrastructures makes little sense until most other elements of service are in place. Yet the competitive rewards of establishing service infrastructures are enormous."

CIOs say there is no perfect IT infrastructure for improving customer service. And they understand that technology is an aid, not an end in itself. "Too many times today, people leap to the conclusion that the answer is technology," said John D. Loewenberg, CEO of Aetna Casualty & Surety Co.'s information technology group in Hartford, Conn. "Unfortunately, there are many examples...where we've equipped people with technology and customer service hasn't improved."

The prevailing wisdom today is to use whatever works. In some companies, that means the fastest workstations, CASE tools, imaging systems, integrated voice systems and a migration from mainframes to client/server computing. In others, the mainframe-dumb-terminal model of 15 years ago still does the trick.

At GE, for example, Joe Vicars, the senior systems manager responsible for the Answer Center, said the system—based on Groupe Bull and Amdahl Corp. mainframes hooked to dumb terminals and running IBM's DB2 relational-database software—is achieving outstanding results (how can you beat a one-second response time?), and there are no plans to abandon that system in favor of networked PCs.

"The paramount technology issue for the Answer Center is to keep the level of response we have," Vicars said. "We're always looking at alternatives, but it will be tough to be better than what we have. There's no pressing reason to change."

Other companies readily embrace

Future Technologies

IS executives were asked to name the technologies in which they will invest in the future to make further improvements in customer service. Responses are listed in descending order of frequency.

- **Client/server systems***
- **Enterprise networking**
- **Imaging**
- **Mobile computing**
- **Database technology**
- **Local area networks**
- **Voice technologies**
- **Cooperative/distributed computing**
- **Electronic data interchange**
- **Multimedia**
- **Wireless networking**
- **Microcomputers/workstations**

** Cited twice as often as the next most-frequently mentioned item*

new technologies in the quest for the perfect customer-service mix. "You certainly want to listen to customers as to how they might be better served and how to improve," said Max Hopper, chairman of American's Sabre Technology Group. "At the same time, you might see some new technological capability that, if you sold it appropriately, customers would find attractive. One is more of a singles game, the other a home-run game."

American, according to Hopper, may be among the original client/server sites in the world. "Sabre was a client/server system from day one," he said. American's IS group started replacing dumb terminals with PCs back in 1987, and today



Hewlett-Packard has the most powerful vehicle for the top UNIX database applications to run on.

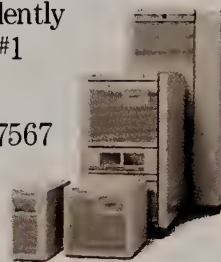
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there are more than 100,000 PCs tied to Sabre. An X.25 packet-switching network is being installed to replace the old proprietary Sabre network. Hopper expects all 18,000 locations around the world to be converted by next year.

In the company's massive data center, American is moving toward shared parallel-processing systems and is working closely with IBM to make sure its mainframe applications will run in a parallel environment. The changing infrastructure is reflected in a long list of customer-service improvements.

At airports, American is upgrading virtually all customer pre- and post-flight experiences including:

- Replacing all flight-display monitors with new, more-accurate, high-tech color displays that list flights alphabetically by destination rather than by time.

- Putting magnetic strips on boarding passes and installing readers at each gate. The flight attendant slides the pass through the reader and sees the passenger's name and seat number on a video display. This facilitates quicker handling and friendlier interaction with passengers.

- Installing computers that generate custom bar-coded baggage tags at curbside and interior check-in facilities. This will reduce the chance of a Denver-bound passenger's luggage ending up in Bahrain.

- Using new weather-tracking systems to more often and accurately update the time from takeoff to landing, thus improving punctuality.

American is also focusing on improving point-of-sale business for travel agents using Sabre. Hopper said the airline spends "tons of money" to improve the system for finding the lowest fares quickly. In addition, the company recently introduced Sabrevision—a multimedia system that includes images of hotels, cruise ships, maps and more—which travel agents can access from their desktops. And Easy Sabre, a home-based version of Sabre, is now available to nearly 2 million subscribers to Prodigy, CompuServe and America Online. Hopper said American has spent heavily to improve the 6-year-old system,

making it more responsive and providing more travel options.

To address in-flight customer-service issues, Hopper said, American is building digital telephone systems for all its airplanes; these eventually will allow passengers to send faxes and E-mail, as well as to make higher-quality phone calls in the air.

**"There are many examples
in industry where we've
equipped people with
technology and customer
service hasn't improved."**

—John D. Loewenberg

Even in industries traditionally bereft of customer-service incentives, the rules are changing. In the electric and gas industries, for instance, "it used to be you could be the low-cost provider and people would expect less, or you could be the quality provider and people would pay more and expect more," said George M. Hill, Andersen Consulting's managing partner for the utilities industry practice in Phoenix. "Now customers want quality *and* low price."

Electricity is a commodity: It looks the same no matter whom you buy it from. With deregulation, power can be purchased from and transported by a wide variety of new suppliers, much like the opening of the long-distance telephone business. "Utilities now have to compete to retain customers, so customer service and cost are becoming the differentiators," Hill said.

Client/server is becoming popular with utility companies, according to Hill. Previously, when customers called with questions about power consumption, it often required 20 or more slips of paper passed from department to department to come up with an answer. Now a single customer-service rep can go to a map file in a window on the screen, find a transformer number within the pow-

er grid and access a file on that transformer. He or she can then quickly determine if that transformer can meet the customer's power needs. If not, a crew can be scheduled immediately to upgrade the transformer. "All the customer cares about is 'I need power,'" Hill said. "Technology is providing the business process to let [that happen]. It's now one-stop shopping."

Enlightened CIOs, particularly in service companies, are often the leading proponents for implementing change on the process side before leaping into technological makeovers. Aetna's Loewenberg, who oversees nearly 5,000 IS professionals, is a key manager in a company undergoing one of its industry's most massive reengineering efforts. Aetna is embracing virtually every new technology, from image systems to a widespread use of laptop computers to new, customized software programs for streamlining claims processing. Yet Loewenberg firmly believes that customer service is a behavioral and cultural issue well before it becomes a technology issue.

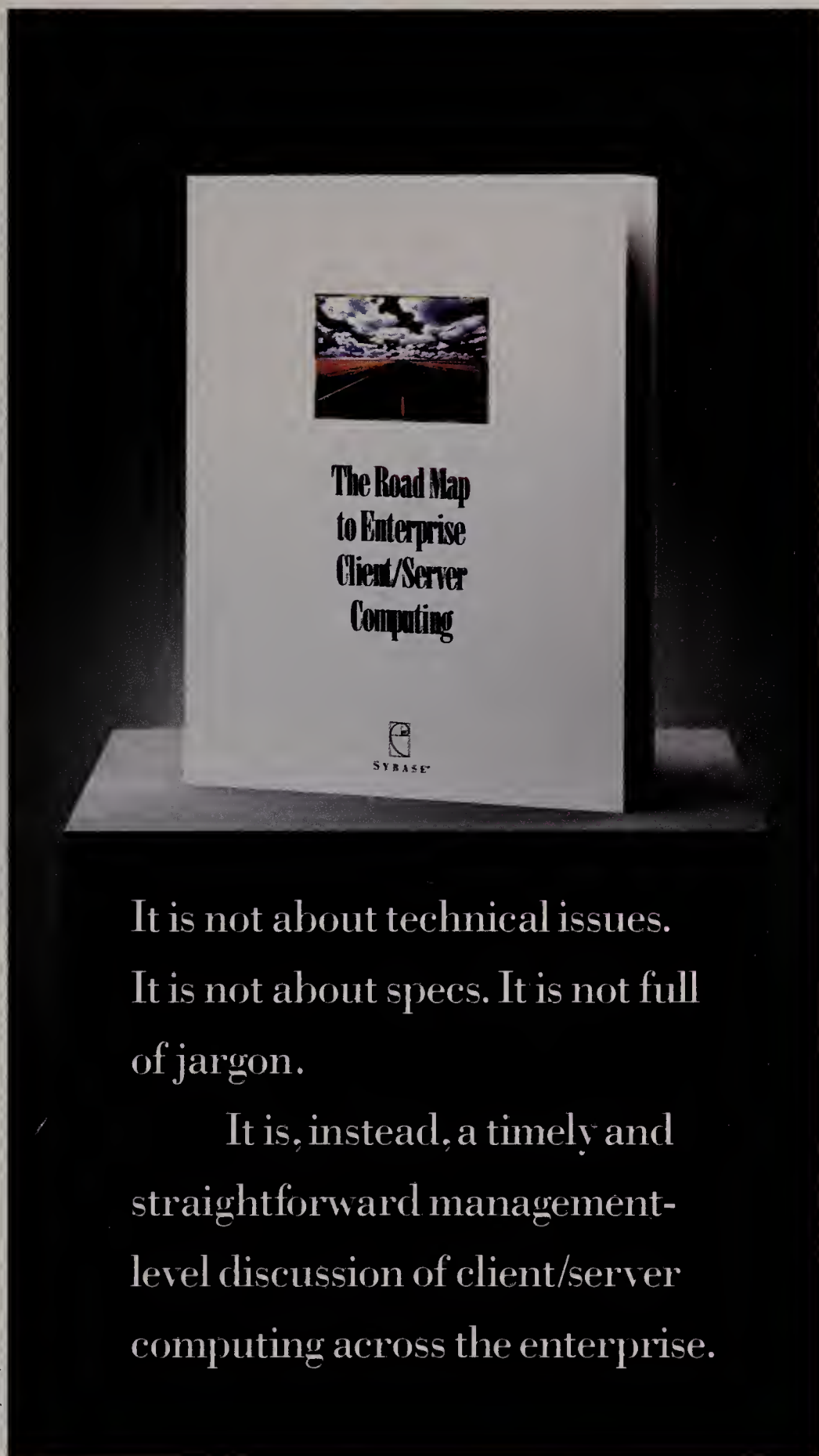
"It's not a systems problem," he said. "A tremendous amount of energy goes into getting people to recognize that they are at the forefront of representing an organization. Their attitude can make all the difference in the world and hide the shortcomings of technology."

He pointed out that the deployment of technology must be considered on a number of levels, including an emotional one. Interactive voice systems, for example, have become an acceptable technology in many customer encounters, saving time and cutting down on unnecessary staff. But for someone filing a death claim, a voice system is simply inappropriate.

"The IT people are working closely with the business and human-resource people to understand the sum total of the organization," Loewenberg said. "It's still a people business. You can't ignore that point." ☐

Glenn Rifkin is a freelance writer based in Sudbury, Mass.

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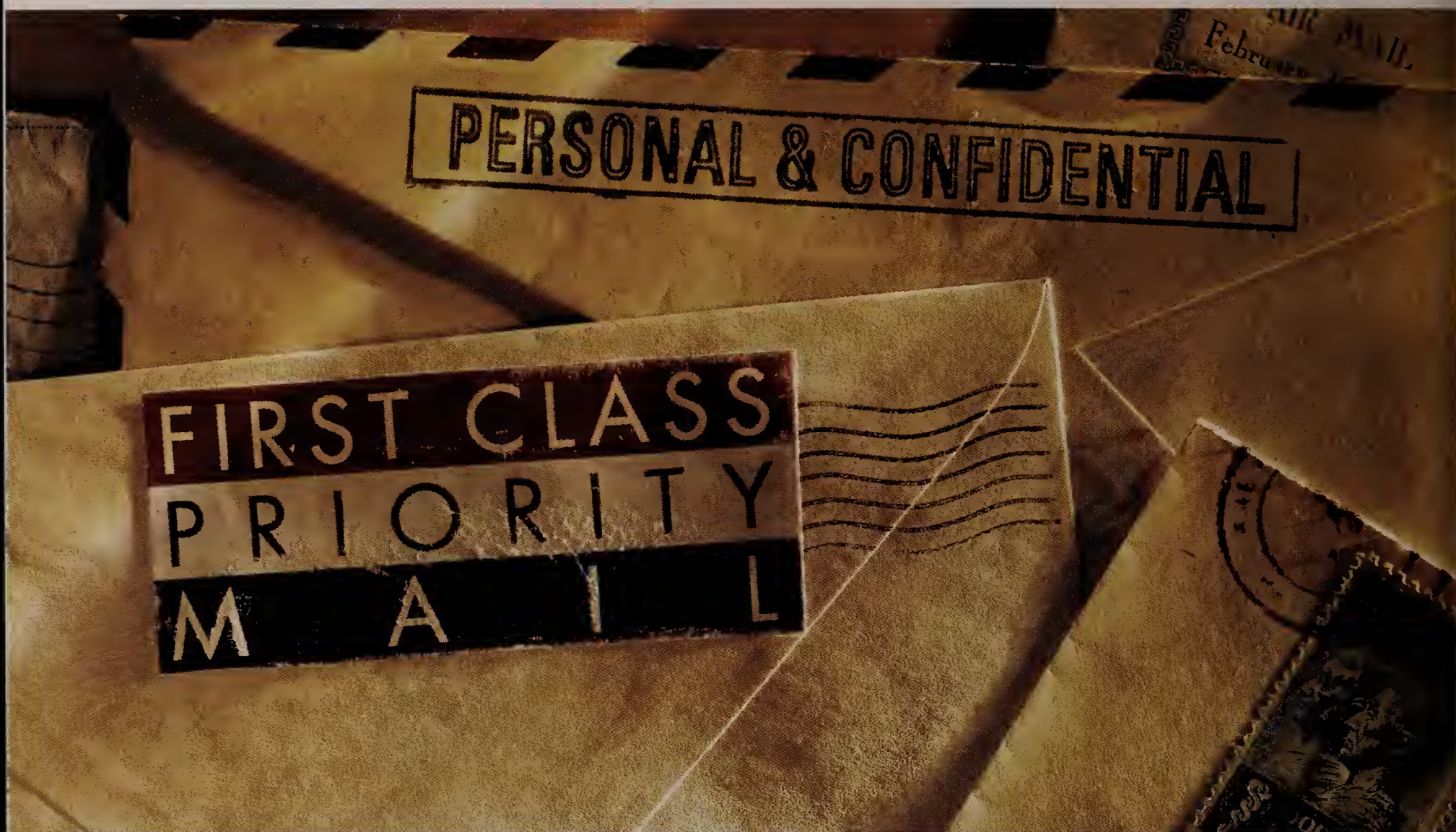
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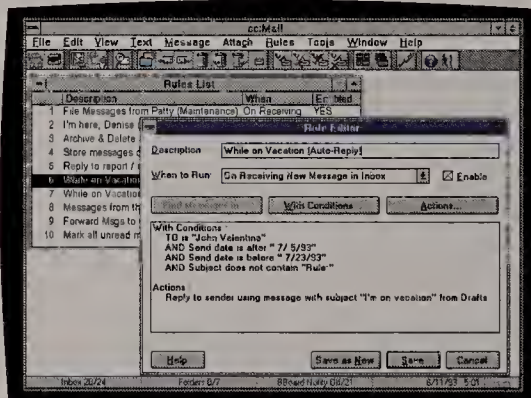
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had you reading about the company bake sale, while crucial, time-sensitive communications waited to be read.

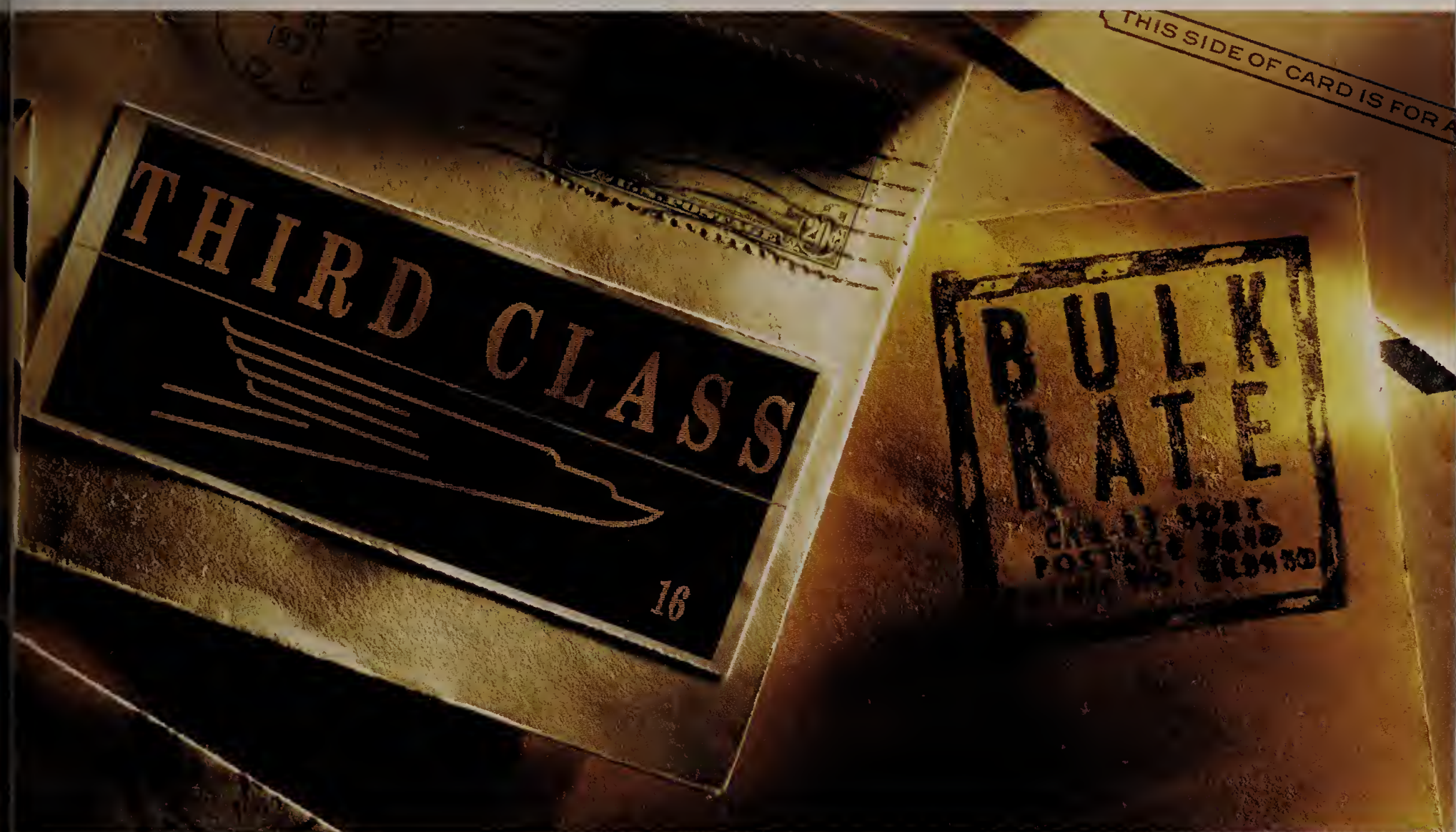
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that develop self-service applications, such as ticketing, hotel check-in and in-store ordering.

Built for hostile environments, the kiosk is housed in a steel case with rugged plastic-molded front and back panels and security locks. Its touch-screen monitor is watertight, scratch-resistant and immune to interference from dirt, moisture and vibration. The product features various accessories and options, including CD-ROM, digital audio and video, a bar-code scanner, modem, telephone and bill acceptor. The kiosk's PC features 4MB of RAM, an 80MB hard drive and four expansion slots. The ServiceTouch Kiosk costs \$5,695. For information, call 508 694-9900.

Seminar Screening Service

Another bad seminar: The first presenter's slides are upside down, they've canceled the day's most interesting session, and the cafeteria's heat-lamp hot dogs cost \$4 apiece. "Never again!" you vow. But seminars are a necessary evil for keeping abreast of changes in your field. If only there were a way to separate the wheat from the chaff.

Lowell, Mass.-based First Seminar might be able to help. Drawing from a database of more than 100,000 seminars nationwide, Smart Options Analysis software will compile information on programs that best correspond to your topics of interest, preferred dates and location, and price range. By fax or mail, First Seminar will send you a graphical analysis of appropriate seminars and related travel costs. If any appeal, the firm will register you and guarantee your satisfaction.

The bottom line, according to the company, is that of the \$12 billion spent on seminars this year, nearly \$3 billion is wasted on poor or inappropriate programs. And that doesn't include the dogs. For more information, call 508 452-0766.



Multimedia Mailbox

Sending documents is certainly a lot quicker and more convenient now that fax machines are commonplace. But problems such as a persistent busy signal or a nosy co-worker can keep a fax from its intended recipient. Octel Communications Corp. is hoping to give users added convenience and control over faxes with a group of products designed to work with the company's voice information-processing systems.

Octel's FaxAgent software lets users send and receive faxes through the same mailboxes they use for voice mail. Users can privately access faxes and listen and respond to voice messages through a single, touch-tone call into their "multimedia mailboxes." FaxAgent eliminates the need for a person to be at a specific fax machine, because the image is stored in a user's mailbox. Using the telephone keypad, the document can be printed at the most convenient fax location. FaxBroadcast allows a document to be sent to thousands of fax devices in one transaction, freeing the machine for other transactions. The fax software works in conjunction with six Octel voice-processing systems. Prices depend on system configuration. For more information, call 408 942-6500.

A Lasting Compression

Want to double your Macintosh disk space and reduce file-transfer times? A new product from Now Software Inc. compresses files automatically when the user's machine is idle and decompresses them as they are opened. According to Now, compressed files are opened as quickly as uncompressed files.

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Now Compress handles each file individually to avoid the possibility of drive-level losses. The user decides whether to compress an entire disk or only specific files or folders. Individual files or folders can be excluded from compression as can groups of files based on type, creator and/or label. All files are checksummed; they are also verified before and after being written to disk. The original copy is maintained until compression is complete to avoid data loss. A status window shows which files are compressed, what the original and compressed file sizes are, and what percentage was saved. The single-user package costs \$99; a 50-user package costs \$3,799. Call 503 274-2810.

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FYI

Yakkity Yak, DOS Fax Back

Vista, an interactive voice-response/fax-back system from ZyBel MicroSystems Inc., interfaces with commercial DOS applications. Its operating concept resembles DOS remote-control programs, but with the remote operation controlled by a telephone keypad. Vista answers incoming calls, plays voice files and accepts user input from touch-tone telephones. It extracts data from DOS-based applications as if the computer were being controlled by a human operator. It can control a broad range of terminal-emulation programs to access mainframe or other host-based systems. Prices range from \$9,000 to \$25,000. Call 203 330-1200.

The Interactive Flip Chart

If that garbled facsimile you just received from your remote co-worker on the videoconferencing screen has you seeing red instead of last quarter's financial results, Xerox Corp. can help. The company's new LiveBoard lets business teams in different locations collaborate, capture ideas, illustrate concepts and share information on its 5.5-foot-wide, interactive, pen-based work surface.

The easy-to-use surface and the product's document-centered approach enable users to focus on the work at hand rather than on the technology—or the other users. LiveBoard features a wireless pen, a 486-based processor and software for creating images that can be edited, colored, annotated, erased, saved and printed. Equipped with the Microsoft Windows operating system, it lets users share documents, images and presentations created in a variety of software applications. It also displays full-motion color video in a movable, scalable window and offers stereo sound.

The product features a rear-projection system and an active-matrix liquid-crystal image device coupled with a high-output light source. It has an integrated data/fax modem for communication over telephone lines, and four expansion slots for connection to existing networks or peripheral devices such as printers, scanners and CD-ROMs. LiveBoard sells for \$49,500 and is available from Xerox's Group Communications unit. For information, call 415 812-5003.



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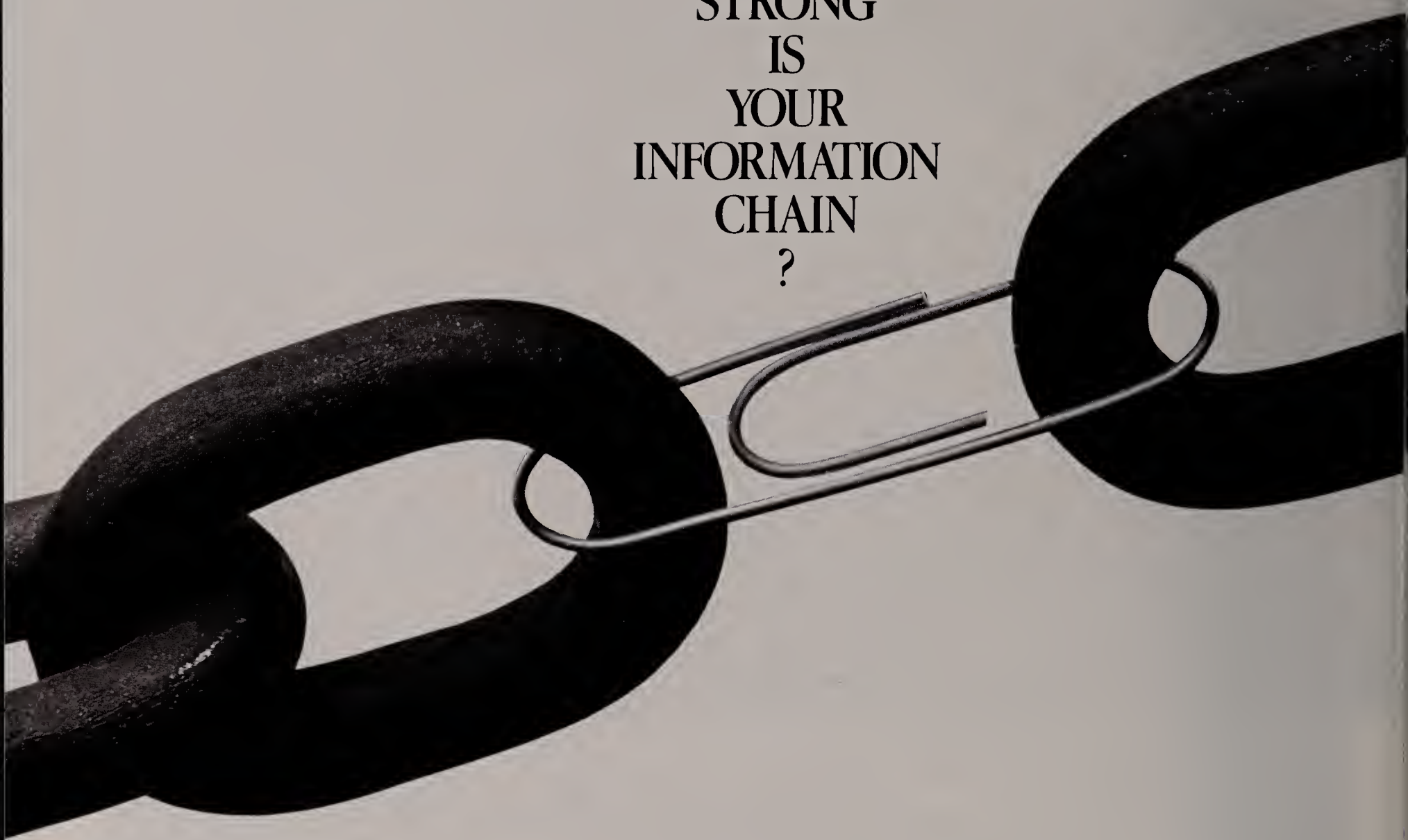
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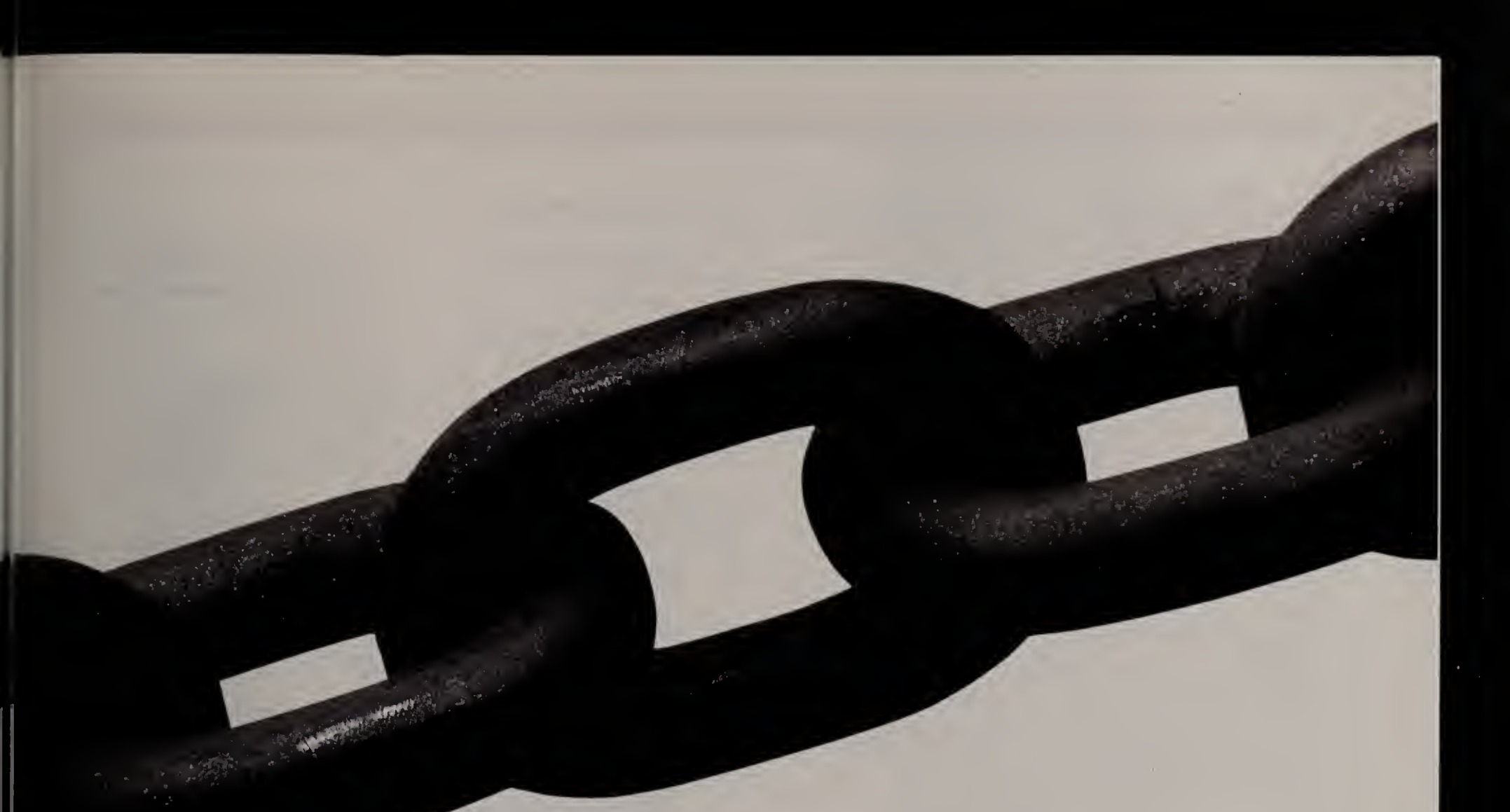
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